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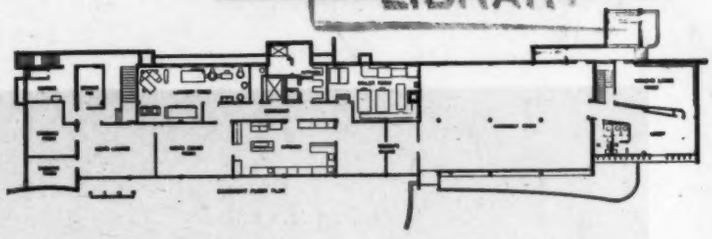
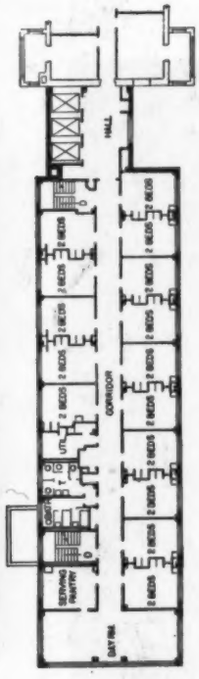
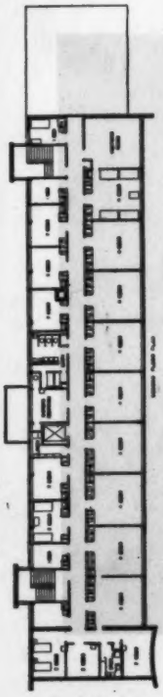
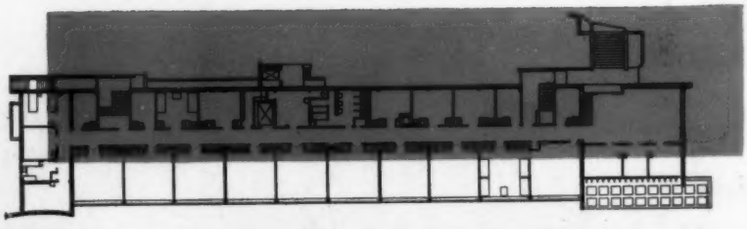




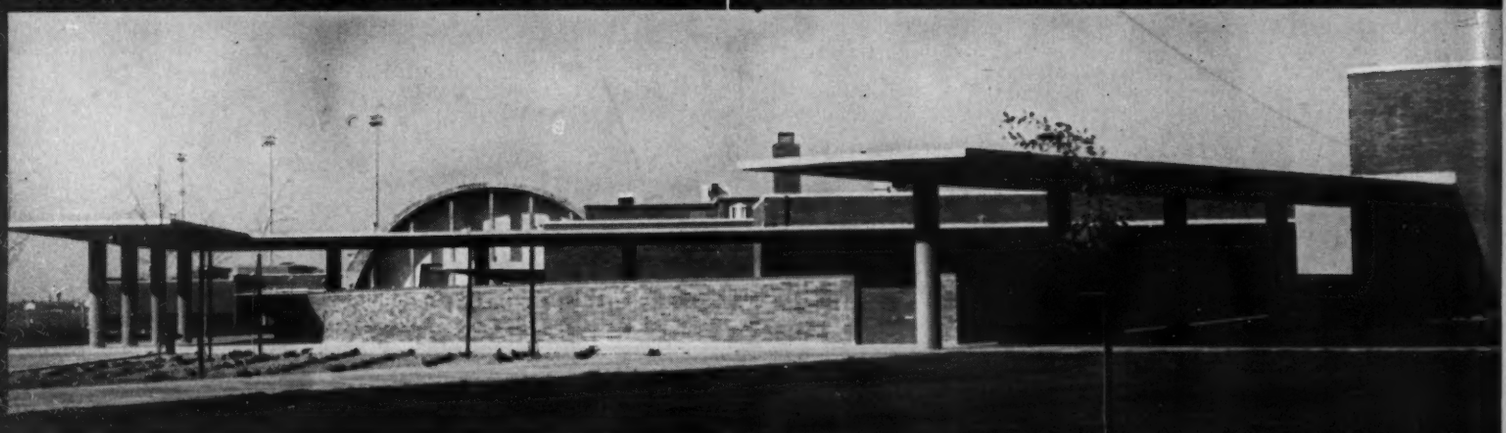


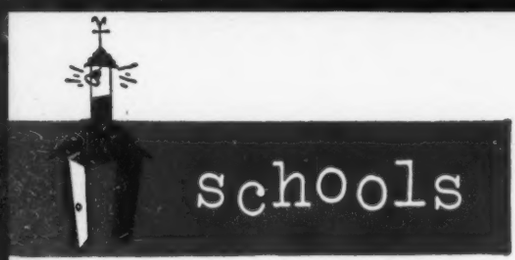


BUILDINGS FOR THE AGED BUILDING TYPES STUDY NUMBER 214

Mill Plain School, Fairfield, Conn. Archt.—Lyons & Mathers; Engr.—Ernest Mortensen; Contr.—E. & F. Construction Co.; Pozzolith Ready-Mixed Concrete supplied by Leverty & Hurley Co., and Silliman & Godfrey Co.—all of Bridgeport, Conn.

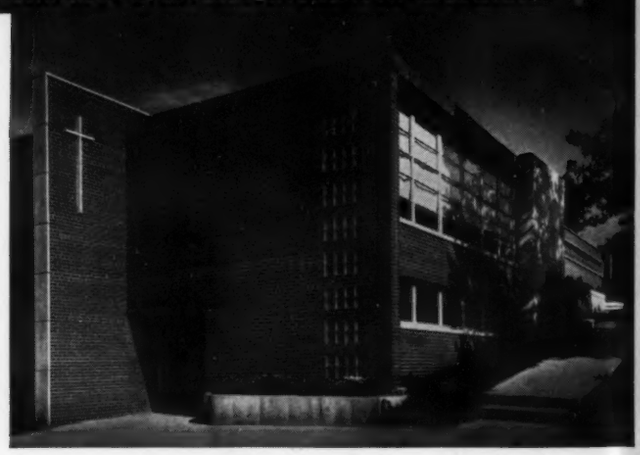
North of the River High School, Bakersfield, Calif. Archt.—Alford & Thomas, Bakersfield; Engr.—Hillman & Nowell, Los Angeles; Contr.—Guy E. Hall, Bakersfield. Pozzolith Ready-Mixed Concrete supplied by Kern Rock Products Co., Bakersfield.





schools

St. Joseph's School, Rockdale, Illinois. Archt.—Edo J. Belli, Chicago; Contr.—A. A. Rose Construction Co., Inc., Chicago. Pozzolith used in all concrete.



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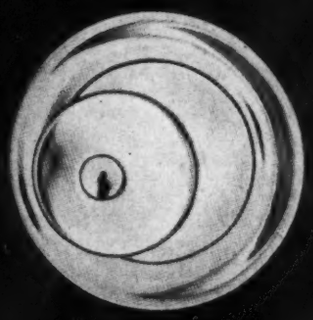

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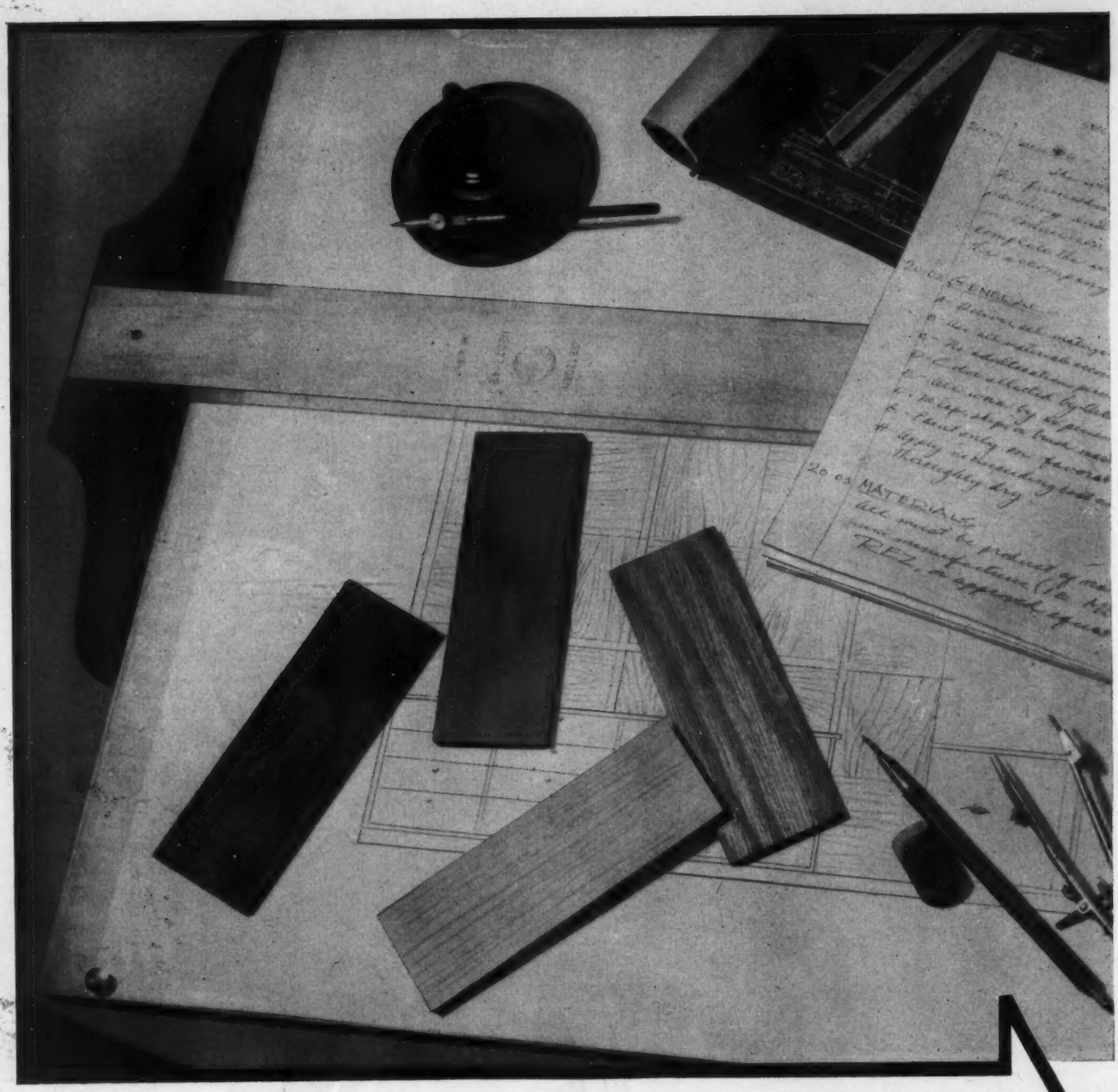

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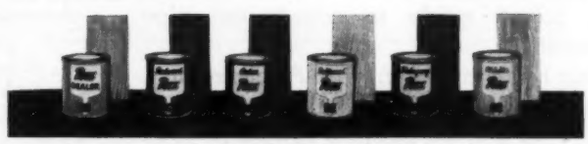

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Everyone who has the say-so on piping for corrosive services is looking for the answer to the big question, "Which piping material will last the longest?" The best place to find the *right answer* is in past service records.

Typical of what you'll find when you look into the past performance of wrought iron pipe is illustrated by the material's record in these Chicago buildings. In each installation, wrought iron pipe is living up to its longer life reputation . . . providing maximum piping economy because it lasts longer, at lower cost per year.

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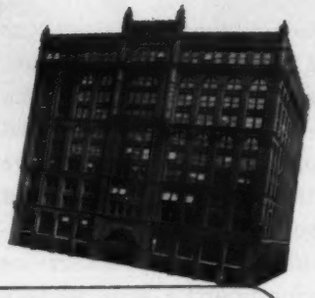
ERECTED 1883, REBUILT 1929

Wrought iron pipe's 46 years of excellent service in original building recommended its use for steam supply and return lines, hot and cold water lines, and drainage system in new building.

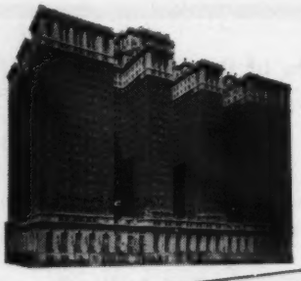
ROOKERY BUILDING



ERECTED 1888

Complete wrought iron piping installation still in service. Inspection revealed that the pipe is still going strong.

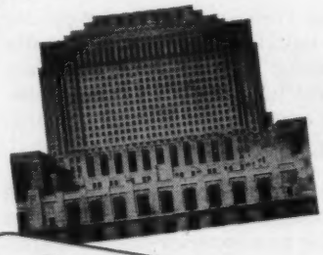
CONRAD HILTON HOTEL



ERECTED 1928

Specifications called for wrought iron pipe in soil, waste, vent, stack, fire, vacuum sweeper, and water (hot, cold, and drinking) lines.

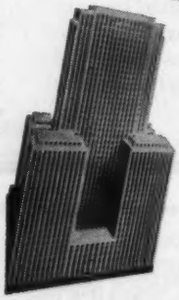
DAILY NEWS BUILDING



ERECTED 1928

Wrought iron pipe was installed in hot and cold water lines, heating return lines, and soil, waste, vent and downspout lines.

FIELD BUILDING



ERECTED 1933

Wrought iron pipe was used for soil, waste, and vent lines. This same protection was extended to all hot water risers and branches.

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ARCHITECTURAL RECORD

September 1954 Vol. 116 No. 3

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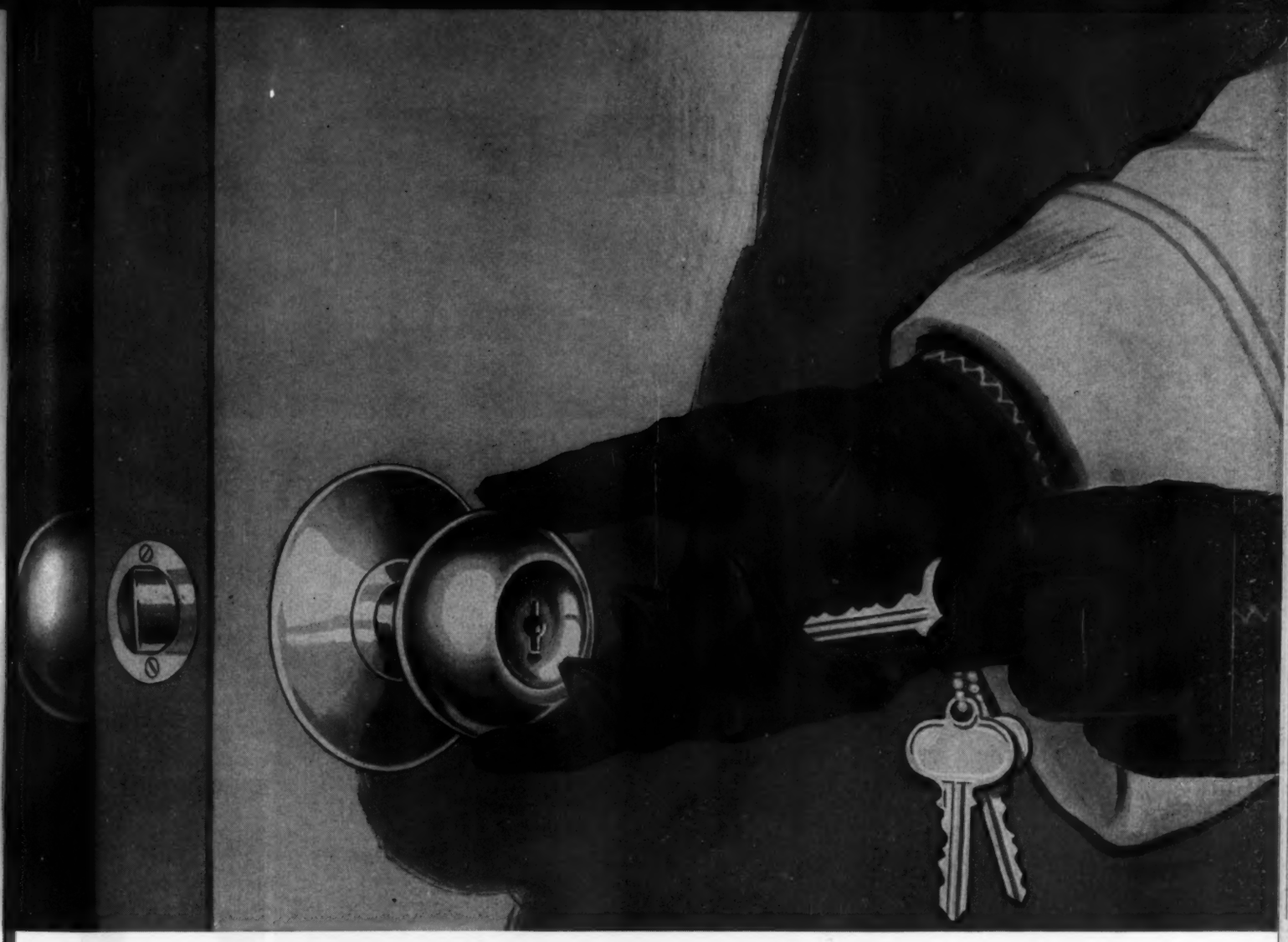

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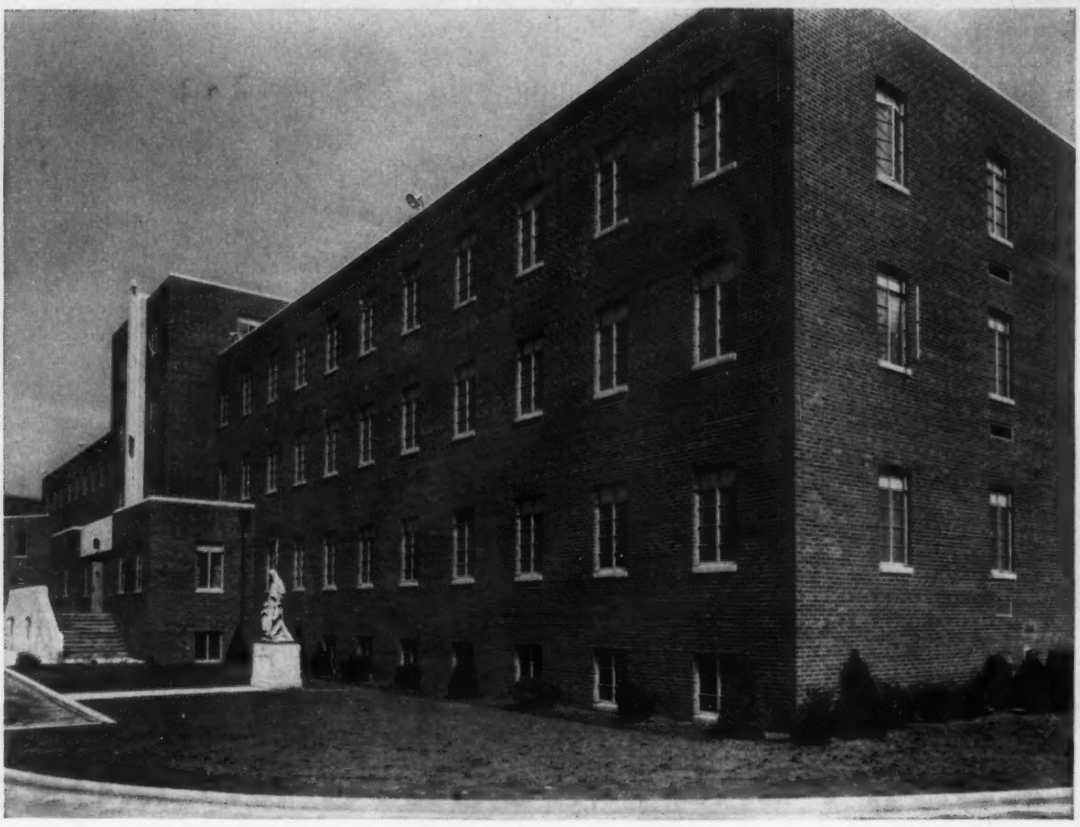

Mother House — Vincentian Sisters of Charity, Pittsburgh, Pa. Constructed by: Walter Butler Co. Saint Paul, Minn.

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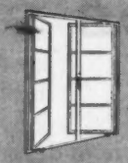
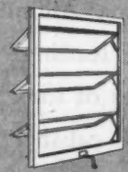


LUPTON CASEMENT ALUMINUM OR STEEL



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PERSPECTIVES

THREE CHAPELS, one for each of the three great religious faiths, are under way (see pages 10–11) on the 200-acre campus of Brandeis University, six-year-old Jewish-founded nonsectarian liberal arts university at Waltham, Mass. What led Brandeis and its architects, Harrison and Abramovitz of New York, to their unique concept of a university interfaith center? A statement by the university's president, Dr. Abram L. Sachar, released to the press when the project was announced in May, follows

IT WAS CLEAR from the very beginning of the University's life that provision must be made for a Chapel development. The University has no doctrinal slant and there is no official chaplain nor any compulsory services. Denominational factors do not influence the development of the curriculum nor the choice of student body and faculty. Yet adherence to this principle does not imply that the University is indifferent to the religious life of the students, nor that it minimizes the wholesome significance of the religious experience. Fact and data must be integrated with value and purpose, else the student is left without spiritual anchorage.

Nearly three years ago, resources became available for the building of a modest Jewish Chapel. This came about through the grateful patients and the friends of a distinguished Boston surgeon, Dr. David D. Berlin, who contributed to a fund to establish the Mendel and Leah Berlin Chapel in memory of Dr. Berlin's beloved parents. It would have been following the well-set tradition of the denominationally founded universities of America if such a Chapel were built on the Brandeis campus, in the image of the host group, with hospitality offered in the Chapel to Catholic and Protestant students. After all, the Harvard Chapel is Congregationalist, the Princeton Chapel is Presbyterian and the Swarthmore Chapel is Quaker. But worship is very much a matter of mood and spiritual climate and is not limited to the words that are spoken or the ceremonies performed. Protestants who worship in a Catholic Chapel, or Jews who worship in a Christian Chapel, while grateful for the hospitality, are never really completely at home and the religious mood that they seek is never really properly evoked.

For months, therefore, discussions went forward on developing the Chapel program in such a way as to eliminate the implication of minority status for any group on the Brandeis campus. There was some discussion about a revolving altar with all groups sharing one area. This was discarded because of almost unanimous opposition to a technique which did not give each religious group its own feeling of uniqueness, in its own facilities. There was also Catholic objection to worship except in facilities specifically created for such a purpose.

The next stage in the development of the Chapel concept came when the original pattern was enlarged to provide for separate Catholic and Protestant areas in the lower story of the proposed Temple. In this way, there would be completely separate facilities for each group. But this was also ultimately discarded, because of the general feeling that no groups ought to be consigned to basements, however mellifluously the area might be designated.

Finally, the present concept emerged from all of the discussion. There are to be three beautiful Chapels, of equal dignity and adequacy, grouped around a lovely pool. There will also be an open altar serving a very large common area so that functions which are planned for such common purposes as Thanksgiving, Baccalaureate, Vesper Services, and the like can be performed against the background of the three Chapels. But when Catholics wish to celebrate a Mass or a special Catholic Service, or when Protestants gather for a unique religious experience, or when Jews are drawn to a Sabbath or holiday service, they each have their own religious facilities for the purpose.

In this way, there is emphasis on the equality of all creeds rather than the pseudo-liberalism of a "least common denominator tolerance." The pattern to be developed faithfully mirrors the University's pansectarian principle while preserving the integrity of each form of religious worship.

Three Chapels under construction: the pool glimpsed in center photograph is central in site plan (opposite)

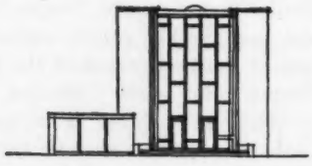
BRANDEIS BUILDS THREE CHAPELS FOR

THE ONLY JEWISH-FOUNDED NONSECTARIAN institution of higher learning in this country will have the first interfaith center on a university campus to provide separate structures for each of the three major religious faiths in a single project embracing them all. The Three Chapels are now under construction on the Waltham, Mass., campus of Brandeis University.

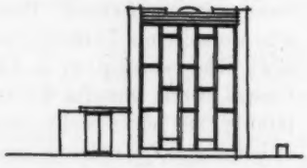
Protestant, Roman Catholic and Jewish chapels are to be grouped around an existing pool on a tree-fringed site a little apart from the other buildings on the 200-acre campus. The chapels have been so oriented that each will have its own wooded outlook across the pool but all will share a large outdoor area with open altar where such functions as Thanksgiving, Baccalaureate and Vesper services can be jointly held. While the buildings are to be of approximately the same height and size, of the same specially made glazed brick (buff-colored with flecks of brown) with large areas of glass, and unadorned on the exterior with any religious symbols, they will not be identical even in exterior appearance. Within, the designs respect differences in spiritual mood as well as differences in facilities required; and here each faith will have its own familiar symbols. Each of the chapels has been designed in close consultation with authorities of the faith involved to insure that religious needs would be met; the Protestant chapel is designed to satisfy the needs of several denominations. Architects of the Three Chapels are Harrison and Abramovitz of New York.

Responsibility for use of the Chapels will be assumed by the three extracurricular religious organizations which have been active on the campus for years — holding their meetings and religious services in any room that happened to be available. Thus the Hillel Foundation will be responsible for the Jewish Chapel; the Newman Club for the Catholic Chapel; and the Student Christian Association for the Protestant Chapel. In keeping with its policy of nondenominational activities, the university has never had an official Chaplain and will name none now; but as before the student organizations will be free to invite clergymen of their faiths to officiate at services.

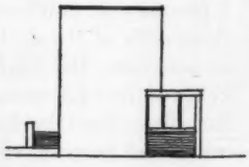
Brandeis last year had 907 students from 31 states and eight foreign countries.



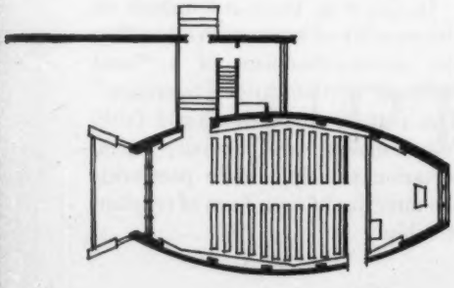
Jewish chapel (sketches of front, or south, elevation above, floor plan below) has glass façades both at entrance and at ark end facing pool. It will seat about 100

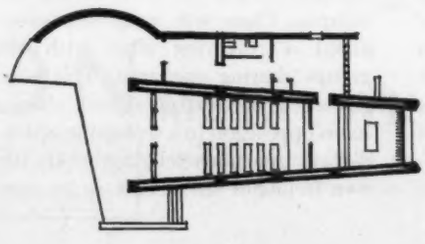


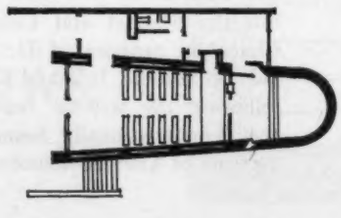
Protestant chapel also will have glass at two ends (sketch of entrance façade shown), also is oriented so congregation faces toward pool. Seating capacity: 65–70

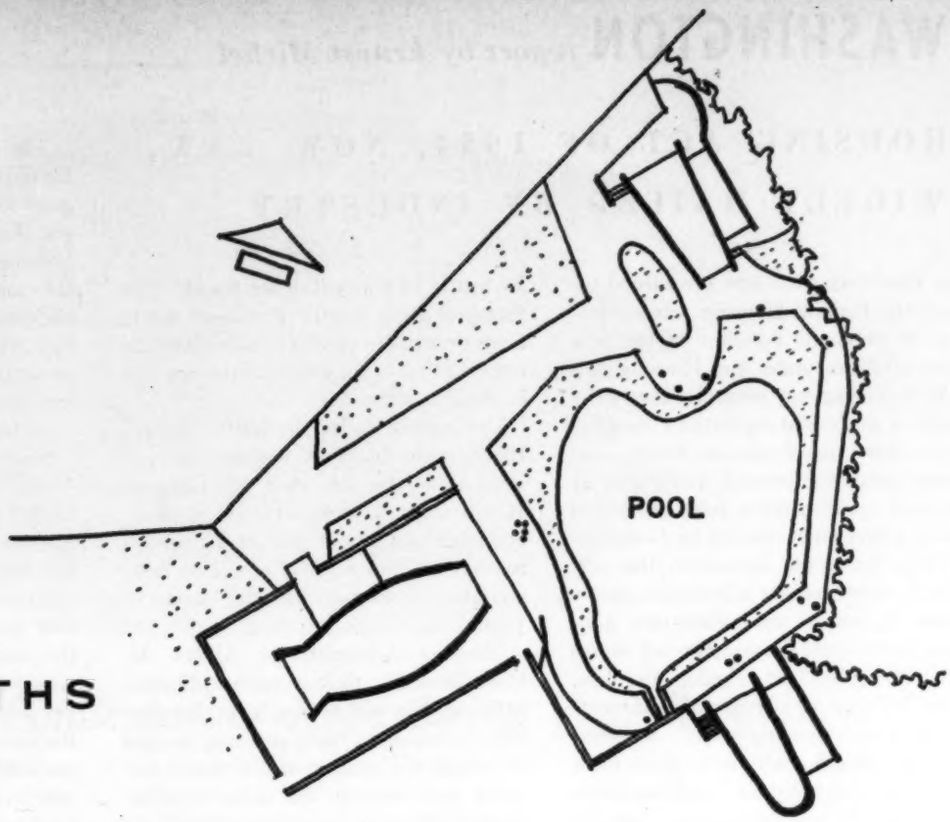


Catholic chapel has entrance on pool side; altar end (sketch of elevation above) is all masonry, in deference to wish for solid enclosure about altar. Seating: 65–70









THREE FAITHS

HOUSING ACT OF 1954, NOW LAW, WIDELY HAILED BY INDUSTRY

ALL INDUSTRY EYES now are turned toward the Federal Housing Administration to watch its handling of the new responsibilities under the Housing Act of 1954. The agency promptly issued the required additional regulations covering lower down payments on houses and longer terms for insured mortgages. It followed up with other rules governing the new programs enacted by Congress.

There was wide agreement the new statute would create a business atmosphere in which one-million-plus nonfarm units could be constructed annually. The President, signing the law, called it "a major advance toward meeting America's housing needs," but indicated he would continue to press for a public housing program "until the needs can be met by private industry" and for broader authority for the Executive to adjust the terms on home loans to changing economic conditions. His request for 35,000 public housing units a year for four years had been reduced by Congress to 35,000 units for one year only — with provisos which make it unlikely that number can be reached. The President's request for flexible credit terms was likewise watered down.

Although they said it produced "the best housing opportunity for home buyers in the past 20 years," the private home builders freely expressed their disappointment on some sections — particularly 220 and 221, which they said hold little resemblance to the original proposals of the Administration.

Section 220 authorizes FHA mortgage insurance for rehabilitation of existing houses and construction of new ones in slum clearance and urban renewal areas where Federal aid is being extended under Title I of the Housing Act of 1949. Section 221 provides FHA insurance for low-cost housing for displaced families in a community where such Title I projects are involved.

R. G. ("Dick") Hughes, president of the National Association of Home Builders, commented on this phase of the new law as follows:

"We regret that the Congress felt it necessary to place restrictions on Section 220 which will, in our opinion, make urban renewal completely ineffective and Section 221 inoperative. The problem is urgent. It is estimated that there are 8.3 million slum dwellings occupied by nearly 23 per cent of our people. The proposal made by the President would have eventually given slum dwellers the opportunity to get out of slums and live in good housing.

"However, under the bill as passed, the private building industry cannot hope to do this job, as it was planned. It will not now be possible for us to accomplish our stated goal of an annual average of two million new and new-conditioned homes for the next 10 years."

Housing Administrator Albert M. Cole, however, took a more optimistic attitude. He said this act, for the first time, provided "a really practical method by which the citizens of our towns and cities can remove the crime-breeding squalor of blight from their midst." He also stressed that benefits of the legislation would be available only to those communities originating their own projects. A workable plan must be developed in the community and then brought to the Federal government for help as required.

The private builders had only praise for the sections liberalizing insured mortgage terms for home buyers and builders. They called the new law the best housing opportunity for home buyers in the past 20 years. Lower income and middle income groups, minority groups, farmers and servicemen will find it much easier to buy houses because of the law, Mr. Hughes declared.

Section by section analysis:

Section 203 — Sales housing. Mortgage limits increase from $16,000 to $20,000 on 1–2 family homes; from $20,500 to $27,500 on 3-family, and from $25,000 to $35,000 on 4-family. New ratio to value limit is 95 per cent of the first $9000 of value plus 75 per cent of the value in excess. President can increase to 95 per cent of $10,000 and 75 per cent of excess if in the public interest. Builder-mortgagors are limited to 85 per cent of the mortgage amount otherwise available. A mortgagor must make a minimum five per cent down payment of the acquisition cost. Same terms on existing houses except that the 95 per cent in the ratio to value limit is 90 per cent. . . . Maximum maturity is 30 years or three fourths of FHA's estimate of the remaining economic life of the housing, whichever is less. Interest

(*Continued on page 318*)

MAXIMUM MORTGAGE AMOUNTS, MINIMUM DOWN PAYMENTS, AND MONTHLY MORTGAGE PAYMENTS [1]

Owner-Occupant Mortgagor for New or Existing 1- or 2-Family Structures

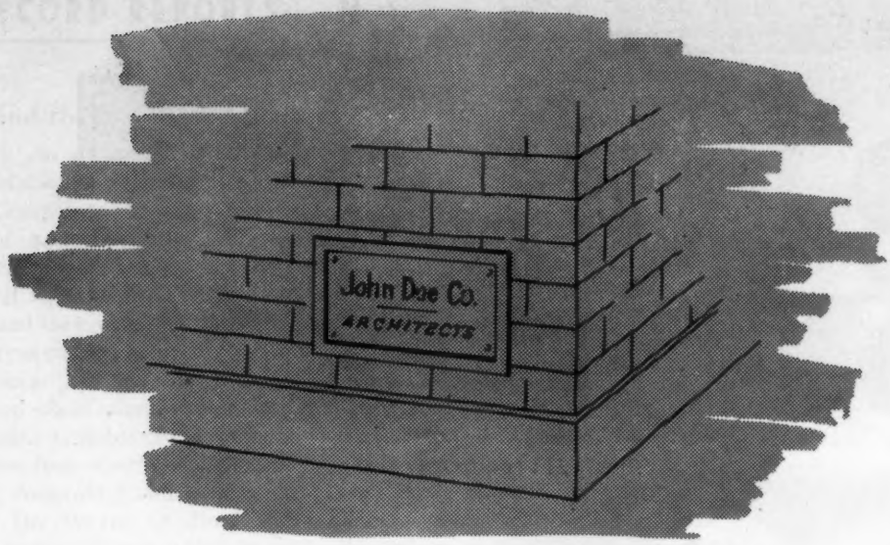
	New Construction							
	Housing Act of 1954				Previous Legislation [2]			
FHA Value	Maximum Mortgage	Loan-Value Ratio	Down Payment	Monthly Payment [3]	Maximum Mortgage	Loan-Value Ratio	Down Payment	Monthly Payment [4]
$ 6,000	$ 5,700	95.0%	$ 300	$ 31.22	$ 5,700	95.0%	$ 300	$31.22
7,000	6,650	95.0	350	36.42	6,650	95.0	350	36.42
8,000	7,600	95.0	400	41.62	7,350	91.9	650	43.83
9,000	8,550	95.0	450	46.83	8,050	89.4	950	48.00
10,000	9,300	93.0	700	50.93	8,750	87.5	1,250	52.18
11,000	10,050	91.4	950	55.04	9,450	85.9	1,550	56.35
12,000	10,800	90.0	1,200	59.15	9,600	80.0	2,400	57.25
13,000	11,550	88.8	1,450	63.26	10,400	80.0	2,600	62.01
14,000	12,300	87.9	1,700	67.36	11,200	80.0	2,800	66.78
15,000	13,050	87.0	1,950	71.47	12,000	80.0	3,000	71.56
16,000	13,800	86.2	2,200	75.58	12,800	80.0	3,200	76.33
17,000	14,550	85.6	2,450	79.69	13,600	80.0	3,400	81.10
18,000	15,300	85.0	2,700	83.79	14,400	80.0	3,600	85.86
19,000	16,050	84.5	2,950	87.90	15,200	80.0	3,800	90.64
20,000	16,800	84.0	3,200	92.01	16,000	80.0	4,000	95.41
21,000	17,550	83.6	3,450	96.12	16,000	76.2	5,000	95.41
22,000	18,300	83.2	3,700	100.22	16,000	72.7	6,000	95.41
23,000	19,050	82.8	3,950	104.33	16,000	69.6	7,000	95.41
24,000	19,800	82.5	4,200	108.44	16,000	66.7	8,000	95.41
25,000	20,000	80.0	5,000	109.53	16,000	64.0	9,000	95.41
30,000	20,000	66.7	10,000	109.53	16,000	53.3	14,000	95.41

[1] Monthly payments include principal, interest at 4½ per cent per annum, and 1/12 the second annual mortgage insurance premium at ½ per cent per annum

[2] For a 2-bedroom house

[3] For a term of 30 years

[4] For a term of 25 years except for mortgage amounts of $5,700 and $6,650 for which the monthly payments are computed for the maximum term of 30 years



Is Destructive Condensation Jeopardizing Your Reputation?

SPECIFYING on a "take-it-for-granted" basis, some architects and builders with their own hands sow the seeds of destruction inside the walls of buildings they are so proud of.

A sturdy, frame house in Pennsylvania, for example, had to be moved. But it was found that the sills had rotted away. Inside the walls was ordinary insulation and no metallic vapor barrier.

A large brick and steel apartment development in the suburbs; a huge housing project in a big city; each caused great expense to its sponsors when ordinary insulation inside walls failed to prevent excess vapor flow, excess condensation formation, resulting in peeling paint and crumbling plaster.

Reputations as well as buildings are guarded by the use of multiple accordion aluminum. Its continuous metal sheets, 500 ft. to 750 ft. long, are impervious to water vapor. Infiltration under flat, stapled flanges is slight.

COST OF INFRA INSULATION INSTALLED in new construction between wood joists, material with labor,

Type 6-S under 9½¢ sq. ft.
Type 4-S under 7½¢ sq. ft.

The scientific construction of multiple layers of accordion aluminum, fiber, and air, minimizes condensation on or within this type of insulation.

Of all heat flow through structural spaces, 50% to 80% is Radiation; 7% Conduction; the rest Convection. Multiple accordion aluminum surfaces have a reflectivity of 97% for Radiation or radiant heat, and an emissivity of only 3%. The aluminum and fiber sheets retard outer and inner Convection. The alternating layers of air spaces have low density and therefore slight Conduction.

To obtain MAXIMUM uniform depth protection against heat loss and condensation formation, it is necessary to use the new edge-to-edge multiple aluminum*, each sheet of which stretches from joist to joist, and also all through the flanges for further vapor protection as well as permanent attachment of each sheet.

*Patent applied for.

A National Bureau of Standards brochure: "Moisture Condensation in Building Walls," interestingly discusses Vapor Flow, and causes and control of Condensation. Use the coupon for free copy.

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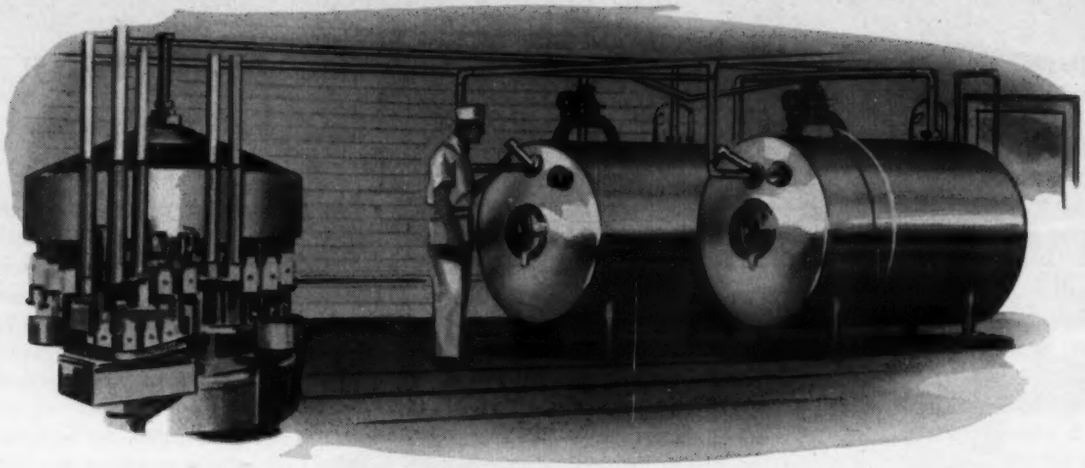
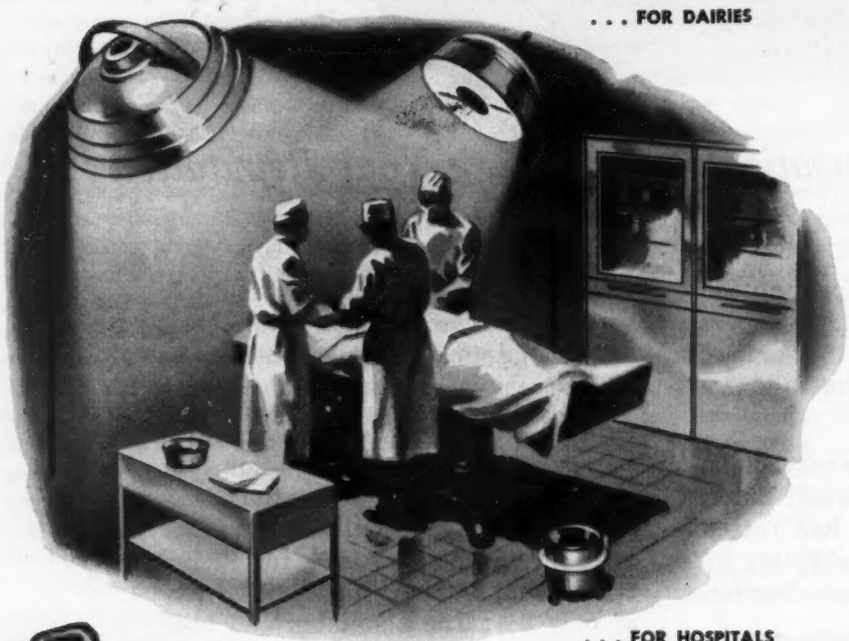


. . . FOR DAIRIES



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Manufacturers of Stainless and Carbon Steels

Schools and the South — and Regional Conferences

COMMUNITY AID TO EDUCATION will be the theme of the fifth annual Gulf States Regional Conference of the American Institute of Architects to be held in Little Rock September 26–28. The meeting will be attended not only by architects and their wives and members of the newly organized Little Rock Producers Council but by school board members and school administrators who will be brought as guests of the chapters of the region from their various localities. U. S. Assistant Commissioner of Education Dr. Wayne O. Reed will make the principal address at the annual banquet; he will be introduced by Arkansas Commissioner of Education Arch Ford, who has also assured the conference committee through the endorsement of the State Department of Education that many educators from throughout the state will be present. The National A.I.A. Committee on Schools will hold its semi-annual meeting in Little Rock in conjunction with the conference and will conduct a forum, with its members serving as a panel, as a summation for the conference seminars; questions from the floor will be invited and slides will be used for illustration. To point up the special context of current school problems in the South, the author of the Ford Foundation's widely-quoted new book "The Negro and the Schools" — Harry S. Ashmore, executive editor of the *Arkansas Gazette* — has been asked to make one of the principal addresses at the conference. Architect speakers will include Charles R. Colbert of New Orleans, William Caudill of College Station, Tex., and Lawrence Perkins of Chicago. A.I.A. President Clair W. Ditchy and Executive Director Edmund N. Purves will also be on the program. Clyde Pearson of Montgomery, Ala., Gulf States regional director, will preside at the various sessions; Gordon Wittenberg of the Arkansas Chapter is chairman of the conference committee.

THE GULF STATES REGIONAL COUNCIL is the four-year-old patriarch among the regional councils now organized and operating in all 12 geographical regions of the A.I.A. Howard Eichenbaum of Little Rock, now A.I.A. national second vice president, started it all when he became Gulf States regional director in 1950 by proposing activation of an unused provision for regional councils in the A.I.A. national bylaws. After a preliminary meeting of representatives of each of the chapters in the region at Biloxi in the summer of 1950, the first annual Gulf States Regional Conference was held in New Orleans that fall — with some eight representatives from each of the region's four chapters, as Mr. Eichenbaum remembers it — and the A.I.A.'s first regional council was formally organized. Attendance at the second Gulf States conference, held the next year in Memphis, reached the 400 mark; several directors from other A.I.A. regions were present as observers — and very shortly other A.I.A. regions were organizing their councils. The A.I.A. Board of Directors and the membership have recognized in the regional councils and the conferences a new avenue for more active participation by the membership in Institute affairs; and recent reorganization moves — including the report presented to the Board at the national convention in June by the Committee on Organization — have leaned heavily on the regional structure provided by the councils. The most impressive testimony as to the present significance of A.I.A. regional conferences is in the attendance figures: at six regional meetings held from mid-September to mid-November last year attendance totaled 2713, more than 600 over the highest total ever recorded for a national A.I.A. convention. The busy season for meetings is here again and the regional conference agenda for the next two months — in addition to Gulf States — includes Sierra Nevada, Great Lakes, Central States, North Central States and Texas.

— *Drawn for the* RECORD *by Alan Dunn*

"What's cooking?"

St. Lawrence Architecture

AN ARCHITECTURAL ADVISORY committee has been appointed by the New York State Power Authority (Robert Moses, chairman) to review all structures for the St. Lawrence Power Project, which got under way — at last — last month under the joint aegis of the Authority and the Ontario Hydro-Electric Commission. Louis Skidmore, of Skidmore, Owings and Merrill, Wallace Harrison, of Harrison and Abramovitz, and John B. Peterkin of New York are the committee. Site planner for the Authority is Gilmore D. Clarke, of Clarke and Rapuano, Landscape Architects, of New York. The United States and Canada also reached agreement last month on joint construction of the St. Lawrence Seaway itself, so the way has been cleared for action on both sides of the boundary on construction of deep-water navigation facilities from Lake Erie to Montreal. If present expectations are fulfilled, construction will be completed by the end of 1958.

(Continued on page 16)

(Continued from page 15)

Gropius and Japan

WALTER GROPIUS returns this month from a summer in Japan. The former director of the Bauhaus and chairman of the Department of Architecture at Harvard has been sponsored by the Rockefeller Foundation as the guest of the International House of Japan Inc. on a tour of Japan for speeches and discussions with architects, educators and other cultural leaders. Gropius believes that "a spiritual cross-fertilization of East and West has today become an imperative necessity for the improvement of human relationships within this shrinking world of ours"; and the International House has said of its guest: "Dr. Gropius' work and ideals are appreciated here particularly because of the fact that he has been keenly interested in projecting social significance into architecture and aiming toward the creation of a harmony between visual effect and productive function. . . ." On their way to Japan, Dr. and Mrs. Gropius visited Australia, where Gropius had been invited to be the guest of the Royal Australian Institute of Architects and address the Fourth Australian Architectural Convention. On the return flight, with brief stops in Calcutta and Karachi, the Gropiuses were to have some time in Paris, where Dr. Gropius is chairman of the advisory panel of architects for UNESCO. There will be a book on the Gropius trip — "Gropius in Japan."

Midsummer at Mackinac

THAT ANNUAL EVENT of the Michigan Society of Architects they call the Midsummer Conference was held early last month in its usual pleasant locale — the Grand Hotel at Mackinac Island — with A.I.A. President Clair W. Ditchy, Executive Director Edmund N. Purves and Regional Director Raymond Kastendieck leading the official proceedings, which are never allowed to interfere too much with Mackinac's holiday attractions. The program included a seminar on "Modern Trends in Furniture and Furnishings," with Bud Hitchcock of the Herman Miller Furniture Company as the speaker, and one on "Granite in Building," with Thomas Hewlett, A.I.A., of O'Dell, Hewlett & Luchenbach, illustrating his talk with slides taken during his recent trip to Norway to select granite for the Ford Memorial Auditorium in the Detroit Civic Center. Dr. Charles E. Ervin, of Michigan State College, provided the appropriate climax in his humorous speech at the closing banquet.

The Kansas Team

THE KANSAS BUILDERS FORUM, an organization composed of the Kansas chapters of the American Institute of Architects, the Associated General Contractors of America, the Master Plumbers Association and the Electrical Contractors Association, will hold its sixth annual meeting this month. The Forum, which schedules only one meeting a year, was founded in 1950 and now has 430 members. "The objective of the organization," says Architect Charles L. Marshall of Topeka, its president, "has been to improve acquaintanceships among the contractors and architects, and to provide an opportunity to discuss mutual problems which effect each of the member organizations in relation to the other groups. In general, its yearly meetings have consisted of two open meetings of all the groups, with an afternoon session of the individual organizations. During the afternoon session, each organization has considered resolutions brought up by the individual organizations for mutual discussion. We have found that this Builders Forum has improved contractor-architect relationships, and the architects have endeavored to incorporate into their planning or specifications some of the suggestions which have resulted from these meetings. One main suggestion has been uniform sections in architectural specifications and the architects are endeavoring to bring their specifications into conformity with this recommendation." Each of the member organizations has contributed a set amount of money to provide operating funds and the paid secretaries of the three contractor associations "have contributed time and energy in making the Forum a success." Besides Mr. Marshall officers include Clarence Vollmer, vice president, representing the Associated General Contractors, and Roy Allison, treasurer, representing the Master Plumbers.

B.R.I. Elects

FRED M. HAUSERMAN, president of E. F. Hauserman, Cleveland, manufacturers of metal office partitions, has been elected president for 1954–55 of the Building Research Institute, a branch of the Division of Engineering and Industrial Research, National Academy of Sciences — National Research Council. The Institute is a technical society which holds research conferences on matters of interest to the building industry as a whole; it sponsors, but does not perform, research. Also elected was Edmund Claxton, director of Research for Armstrong Cork Company, Lancaster, Pa., as vice president. These members were added to the Board as directors for three-year terms: F. Stuart Fitzpatrick, manager of the Construction and Civic Development Department, Chamber of Commerce of the United States, Washington, D.C.; Dr. H. H. Hunzicker, director of research, United States Gypsum Company, Chicago; Thomas D. Jolly, vice president, Aluminum Company of America, Pittsburgh; J. W. Kreuttner, vice president, Buensod-Stacy Inc., New York City heating and air conditioning engineering firm; Harry C. Plummer, director of engineering and technology, Structural Clay Products Institute, Washington, D.C.; R. A. Smith of P. J. Walker Company, Los Angeles contractors. To fill vacancies, Robert W. Cutler, a partner in the New York architectural firm of Skidmore, Owings and Merrill, and Mr. Claxton were appointed to two-year terms and Dr. H. A. Leedy, director of the Armour Research Foundation, Illinois Institute of Technology, Chicago, and Clarence A. Thompson, chairman of the Lumber Dealers' Research Council, Champaign, Ill., to one-year terms.

Changes at Ann Arbor

DEAN WELLS BENNETT of the College of Architecture and Design at the University of Michigan, Ann Arbor, has announced the formal departmentalization of related activities as follows: the Department of Architecture, with majors in Architectural Design, Architectural Construction, Regional and City Planning, and Building Equipment; the Department of Art, including Painting and Printmaking, Sculpture, Ceramics, Information Design, Product Design, and Interior Design; and the Department of Landscape Architecture. Prof. Walter B. Sanders has been appointed chairman of the Department of Architecture; Associate Professor Aare K. Lahti, acting chairman of the Department of Art; and Prof. Harlow O. Whittemore, chairman of the Department of Landscape Architecture.

(More news on page 20)

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WITH AUTHORITY

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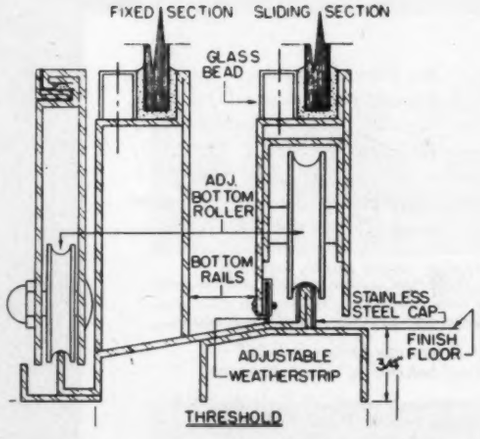
Success in any field is achieved when those who are qualified, back their judgment by specifying your product. In this industry, three groups have been responsible for our progress: *architects* who sense the superiorities in a Malibu door; *home owners* who have confirmed their architects' judgment with trouble-free experience; *distributors*, such as W. P. Fuller & Co., *in the West*, Binswanger & Co., *in the South*, and Pittsburgh Plate Glass Co., who are delivering more Malibu doors every day. Only the qualified can speak with authority, and they are specifying Malibu.



Three superiorities of Malibu units are the adjustable weather strip, adjustable bottom roller and the stainless steel track.
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Texture One-Eleven combines high style with the strength and dependability of industry quality grade-trademarked Exterior fir plywood (EXT-DFPA®), made with waterproof glue. Specify it by name. And remember, only genuine T 1-11® gives you all these features:

- *Shiplap edges neatly conceal vertical joints.*
- *Clean-cut grooves, surface texture.*
- *⅝"-thickness leaves full ⅜" panel behind ¼"-deep grooves.*
- *Comes in 8' and 10' lengths with grooves either 2" or 4" o.c.*
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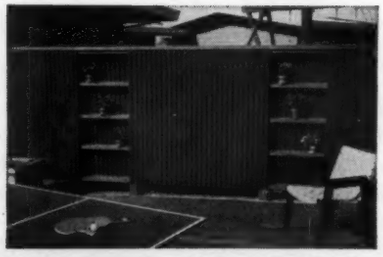
EXTERIOR FIR PLYWOOD • EXT-DFPA

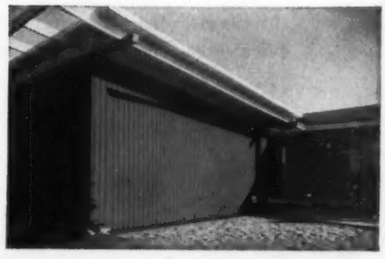
...the exciting new panel material that combines line and texture

Since its introduction only a few months ago, Texture One-Eleven® has been enthusiastically received by architects and builders. Here are examples of the many exciting things being done with this striking new material.

Texture One-Eleven siding combines high style with the strength, durability and economy of dependable Exterior fir plywood.



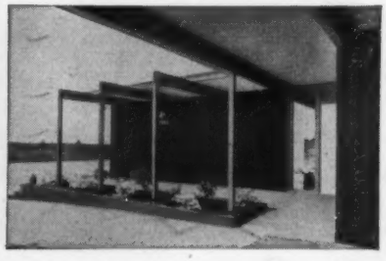
Equally effective for patio fences, gable ends and soffits, Texture One-Eleven contrasts well with masonry and other materials.



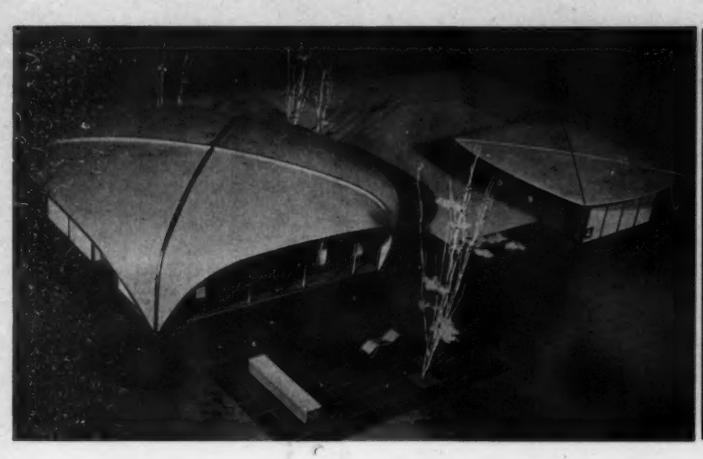
Texture One-Eleven meets FHA requirements for combined siding and sheathing which permits major construction economy.

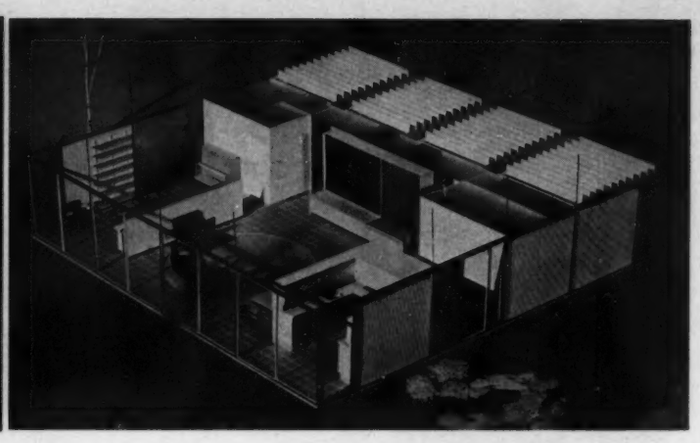
T 1-11's bold parallel groove pattern and subtle surface texture adds drama and interest to residential and commercial interiors.

Texture 1-11 siding weathers well, surface texture is enhanced by exposure. Glue is completely waterproof and weatherproof.



Builders of special demonstration homes report home buyers are equally taken with striking beauty of new Texture One-Eleven.





Plastic "House of 1964" designed by architect Eliot Noyes for General Electric — so far only a model for touring exhibits — has stressed-skin roof of two bonded plastic sheets, supported by aluminum ribs. Walls, partitions and floors are also of plastic. Louvered ceilings over bedrooms are made of a translucent plastic containing luminescent pigment which is electrically lighted. Circle in living room revolves

PLASTICS FOR BUILDING: A TOPIC UP FOR DISCUSSION

A FULL-DRESS CONFERENCE on "Plastics in Building" has been scheduled for Oct. 27–28 at the National Academy of Sciences in Washington; it is jointly sponsored by the Society of the Plastics Industry, Inc., the Manufacturing Chemists' Association and the Building Research Advisory Board and will be conducted by the Building Research Institute. It is open to all interested.

The sessions programmed include a general introduction to the subject, two sessions on specific applications of plastics to building, standards and codes and future uses. Among subjects for discussions are piping, glazing, flooring, walls and partitions, ceilings, roofing, ductwork, insulation and structural applications. The conference will be summarized by representatives of both the plastics and the building industry.

Exposition in Cleveland

The current interest in the field was reflected in recently announced attendance figures for the 1954 Plastics Exposition, held in June in Cleveland with 19,000 attending the exposition as compared with the 18,000 in 1952, and with 172 exhibitors against the 137 of that year. The exposition included building materials and a special exhibit on the "plastic house" at Deerfield Beach, Fla. (see photos below).

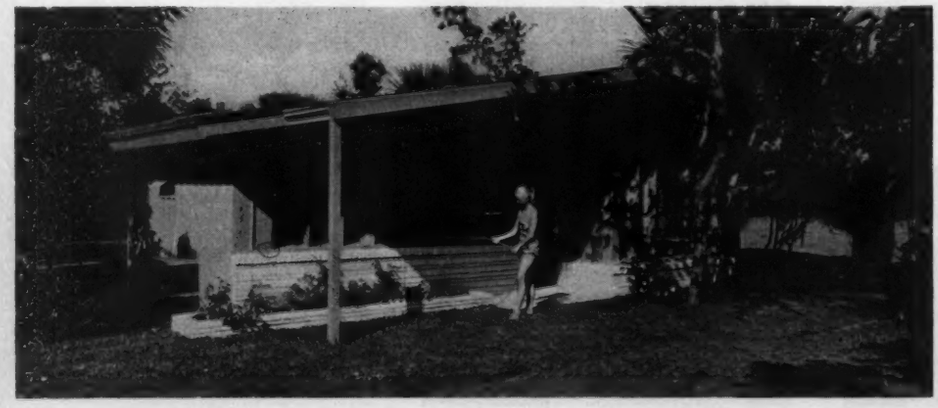
Concurrent with the exposition, which was sponsored by the Society of the Plastics Industry, was a four-day Plastics Conference.

Plastics Research

The School of Architecture and Planning at Massachusetts Institute of Technology has received a $10,000 grant from Monsanto Chemical Corporation to carry out a one-year research project on the use of plastics in housing. The program includes structural problems as well as a search for applications of plastics to furnishings and decoration.

Head of the advisory committee is Burnham Kelly of the school of architecture; other members are John E. Arnold, of the Mechanical Engineering Department, Albert G. H. Dietz, director of M.I.T.'s Plastics Research Laboratory, and Richard Filipowski of the school of architecture.

Plastic guest house designed by architect Robert Fitch Smith for A. W. Russell in Deerfield Beach, Fla., uses a yellow fibrous plastic for 40 per cent of the exterior walls; this plastic is translucent. Only non-plastic items are the wood frame and aluminum casements. Roof is light blue, doors and jalousies green and yellow



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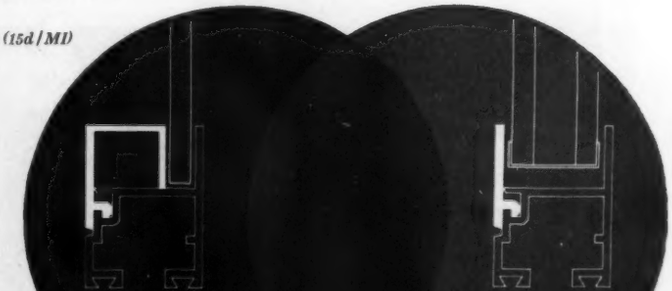
STEEL OR ALUMINUM FRAMED



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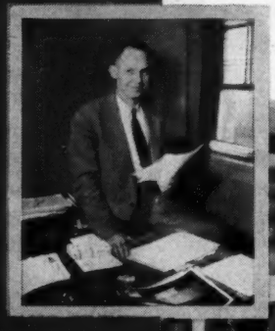

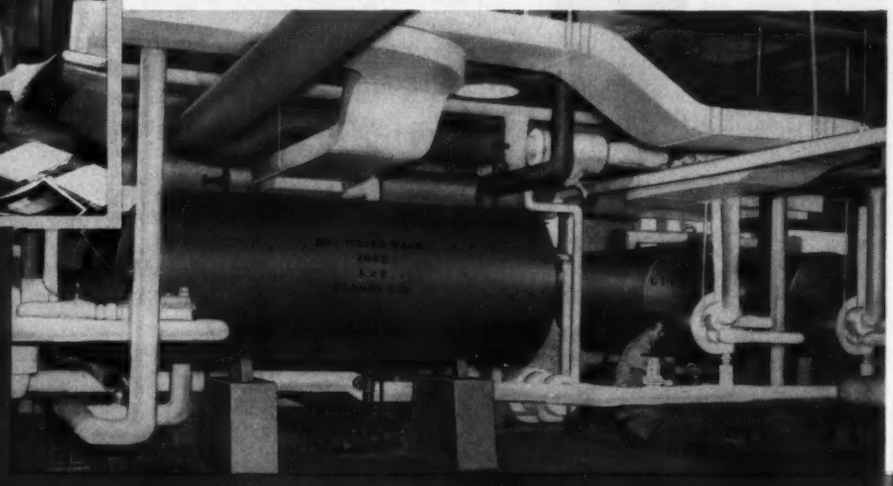

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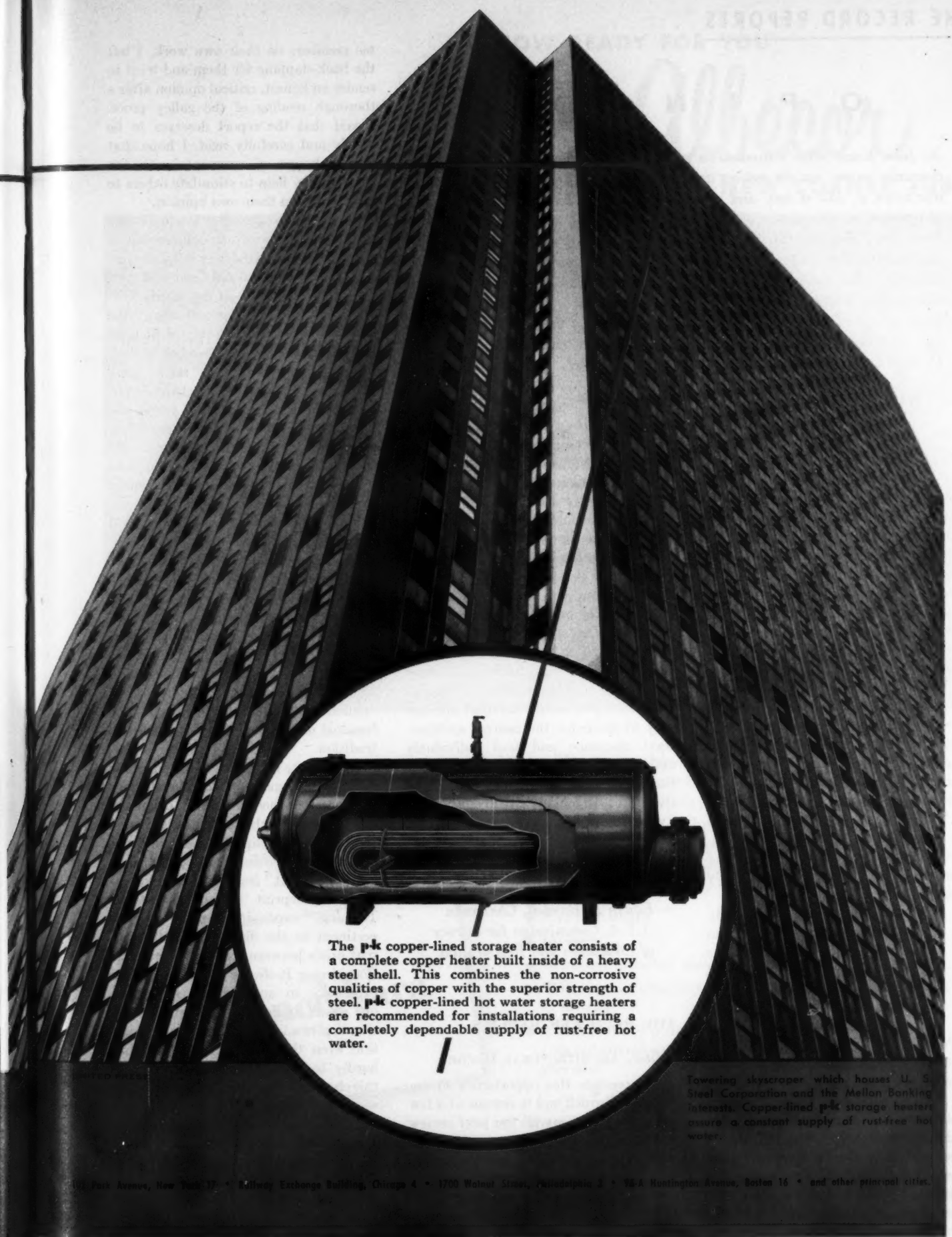

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O P I N I O N

As John Knox Shear's summaries of the results of the RECORD's *own questionnaire survey on the subject are showing (see August, p. 194 et seq., this issue, p. 182 et seq. and next month), there is room for a wide variety of opinion on the matter of architectural education and related problems. Here Dr. Edwin S. Burdell, president of New York's Cooper Union and chairman of the A.I.A.'s 1950 Survey Commission on Education and Registration, takes exception to the views of his Commission's two-volume final report,* The Architect at Mid-Century, *expressed in a review in the June issue (p. 44 et seq.) by Buford L. Pickens, dean of the School of Architecture at Washington University, St. Louis. The* RECORD *has invited Dean Pickens to reply and his letter follows Dr. Burdell's.*

THE CHAIRMAN OBJECTS

Editor, ARCHITECTURAL RECORD

Thank you for your kindness in sending me tear sheets from the review of *The Architect at Mid-Century* in the June issue of the ARCHITECTURAL RECORD.

It is unfortunate that the time that you had in which to assemble this material was so brief, for I don't think the review or the hastily prepared comments of the members does justice to the efforts of the Commission.

Of course, anyone is entitled to his own opinion as to what a survey should be, but I am surprised that Dean Pickens looked backward to the old-fashioned pattern of a one- or two-man committee that, after a few pleasant trips to nearby campuses, sat back in their easy chairs and pontificated on what the state of their profession is and ought to be. It seems to me he completely missed the virtues of our approach. Dr. Bannister, in his comment on page 46 of your June issue, expressed it very aptly when he said,

> "the Commission immediately adopted a breadth of view and standard of objectivity which was intended to minimize that hazard of subjective opinion which has so long plagued consideration of architectural education and registration."

Furthermore, I can vigorously deny that "ideas which might have suggested a broad re-examination . . . but which did not emanate from the Commission itself were . . . dismissed." The Dean evidently skimmed too rapidly the 513 pages and 62 tables for he would have noted that throughout the Report the opinions of Fellows, deans, and teachers were sought, evaluated, and taken into consideration.

To be sure a certain "meeting of the minds" of ten or a dozen men took place, but if you take into consideration the extreme individuality of the members of the Commission, no one could seriously believe for a minute that a single one of them would submit to any emasculation of his views. The example Dean Pickens cites of pious hopes vs. accomplished facts is a fine example of taking quotations out of context and certainly not a "typical example of one paragraph cancelling out another."

Finally, as to worrying about how long it will be "until leaders . . . face the task of making qualitative evaluations . . . ," I would say that one has only to reach for the nearest architectural magazine and find individuals making qualitative evaluations. As Dr. Bannister says, we've had enough of that and as to making any mystery as to "why the original survey was instigated or to whom it might . . . be addressed," I should say it was made as plain as Dean Pickens' review is confused.

— *Edwin S. Burdell, Chairman*
A.I.A. Commission for Survey of Education and Registration

THE REVIEWER REPLIES

Editor, ARCHITECTURAL RECORD

I appreciate this opportunity to answer Dr. Burdell and to document a few comments from my all too brief review published in the June issue of ARCHITECTURAL RECORD. My original assignment was to review this important two-volume report in approximately 750 words. Since my remarks were to accompany the evaluations of six committee members on their own work, I left the back-slapping for them and tried to render an honest, critical opinion after a thorough reading of the galley proof. I said that the report deserves to be widely and carefully read. I hope that this exchange of comments with Dr. Burdell may help to stimulate others to read and form their own opinion.

Dr. Burdell is generous to admit that I am entitled to my own opinion, but in the same breath he denies it by conjuring up for me "the old-fashioned pattern" which doesn't fit my words. One of the things I questioned about the survey was *not* the number of men on the committee, *nor* the number of their visits, *nor* the way they might have "sat back in their easy chairs," but rather the way, after four years, the Commission resolved whatever differences they may have had and managed to agree so completely about all but one of the 43 recommendations and many controversial professional problems. Why is a minority report to be avoided so assiduously? I can understand that in the gathering of statistical data and in the recording of historical facts there is no place for subjective opinion. But when all the facts are in and we face the problem of interpretation, the question is: where do we go from here? At this point there seems to be an appropriate place for the expression of differences of opinion well within the bounds of professional dignity and the best American tradition.

Now to cite for Dr. Burdell's vigorous denial a few specific examples of ideas which were either summarily dismissed or consigned to the footnotes. On page 153, Vol. I, there appears a six-line quotation from Professor Gropius taken "out of context" from his brilliant summary "Blueprint for an Architect's Training," expressing a point of view pertinent to the discussion of the gap that exists between school and practice. Considering Professor Gropius' lifetime experience in architectural education, one would expect the Survey Commission to give a fair and serious interpretation even though they disagreed, but hardly to dismiss the statement with this chauvinistic and curt remark: "This seems to mean that the American collegiate system is only to be tolerated as a regrettable and transitional compromise." There are other possible inferences to be drawn from Professor Gropius' complete statement which would have enriched the report and certainly would have been germane to its purpose.

(*Continued on page 300*)

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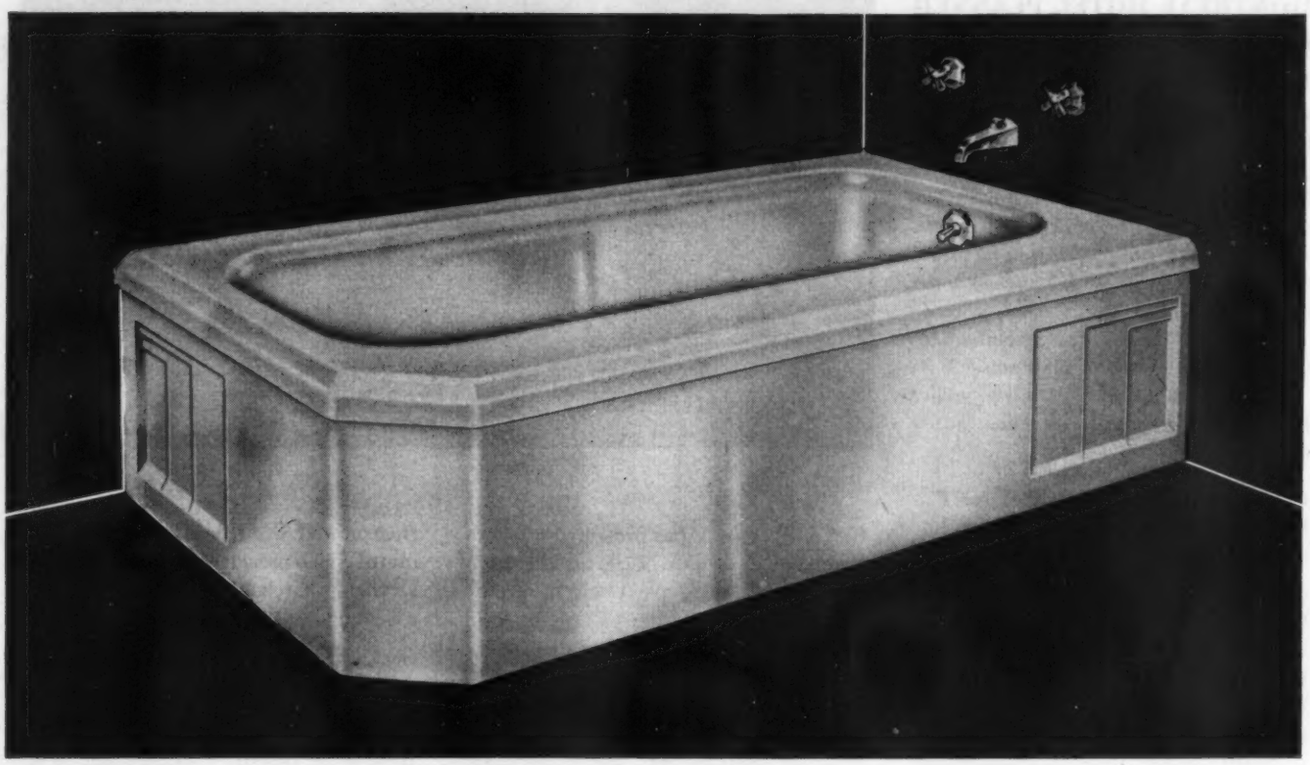

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NEWS FROM CANADA *by John Caulfield Smith*

MONTREAL HOTEL PLANNED BY NATIONAL RAILWAYS

THE MONTREAL TERMINAL DEVELOPMENT planned by Canadian National Railways got under way recently when demolition was started on the site of their projected $20 million hotel. The 20-story hotel will contain 1000 rooms as well as extensive convention facilities. Completion of the still nameless hotel is scheduled for the fall of 1957.

G. F. Drummond, chief architect for C.N.R., is in charge of planning.

Next step: a 28-story railway office building, to be built, at some future date, next to the hotel.

C.C.A. PRESIDENT BRUNET SCORES "PACKAGE DEAL"

Raymond Brunet, O.B.E., president of the Canadian Construction Association, declared himself on the side of the architect in the current controversy over the "package deal." Mr. Brunet defined the package deal as that of a large organization offering to erect a building not with the aid of an independent professional designer, but rather serving as both designer and contractor itself, and in extreme cases offering also to provide the land and the finance. "The method may have some good points," he said, "but in my opinion it is unsound."

Mr. Brunet continued: "There should be a professional man between owner and contractor, and he should be entirely free to select a building design which will best suit the owner, rather than use one which meets the speculators' convenience.

"It is a serious situation and one which, if allowed to spread, could bring disastrous effects on the relations of the members of our present construction team.

"I feel that I speak for the great majority of my colleagues the building contractors in saying that we have no desire to encourage it."

PROTEST SUBMITTED BY ALBERTA ARCHITECTS

In a six-page brief presented to Premier E. C. Manning, the Alberta Association of Architects has protested the government's expansion of the architectural division of the Department of Public Works and its offering of architectural services for public buildings at a fee of two per cent of the cost.

Specific objections raised in the brief included one to a $5 million construction program planned by the government for 1954; no Alberta architects were named for any of this work. All municipal health districts in the province, the protest continued, have been notified that the Department of Public Works is prepared to design and supervise construction of municipal hospitals, at a two per cent fee. The architects said that they had learned that all branches of the government had been similarly informed that the Department of Public Works could handle their architectural needs, and that they assumed this offer included school boards.

As the architects see it, the brief concluded, the government is planning to practice architecture on a scale so extensive that it will be "to the detriment and exclusion of the architectural firms of this province."

NEW OFFICERS ELECTED BY PLANNING INSTITUTE

Members of the Town Planning Institute of Canada elected as their president Dr. E. G. Faludi of Toronto at their recent annual meeting held in Toronto. Other officers elected were: P. Alan Deacon and T. D. leMay, both of Toronto—vice presidents; and R. Norman Dryden, Kitchener, Ont. — secretary-treasurer.

PLANS MADE TO CONTROL ONTARIO DEVELOPMENT

A proposal has been put forward for control of Ontario's as yet uncharted industrial growth. As explained by the Hon. W. K. Warrender, Ontario Minister of Planning and Development, the plan calls for a five-way division of the province. These five zones have already been tentatively suggested. The plan requires broad development at the provincial level, with general designations for heavy industry, light industry and agricultural areas. The local level of government would be responsible for more specialized zoning and planning of communities.

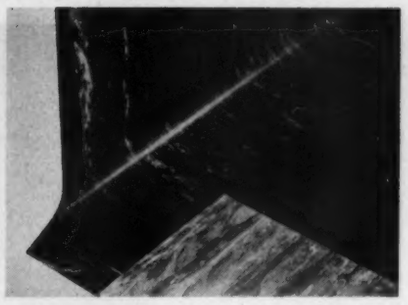
The accomplishment of this plan is still a long way off, however. The planning program, as outlined by Mr. Warrender, will first require a series of central and area conferences, which will bring together government officials, zoning and planning men, industrial commissioners and other interested parties.

The second step will be to set up a central authority made up of representatives for each area. This authority would be responsible for channelling future growth within the various zones.

(*Continued on page 30*)

Look at the Corners

Look at the Counters



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"We feel the sales record is even more impressive when one considers that other builders' homes in the area remained unsold, although the structures were erected before ours.

"We just wouldn't think of erecting houses today without a General Electric Kitchen-Laundry."

Opportunity for you. Not just in Tampa, but in scores of cities, builders are reporting phenomenal sales results with G-E appliances. Why not get all the facts through your G-E distributor today?

Home Bureau, General Electric Company, Appliance Park, Louisville 1, Kentucky.

Left to right: D. H. Foster, secretary; George Nipper, G-E distributor-builder representative; and M. H. Foster, president of Manhattan Manor. Ask your G-E Major Appliance distributor-builder specialist about promotional plans for your market.

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GENERAL ELECTRIC

THE RECORD REPORTS

CANADA

(*Continued from page 26*)

While the Department of Planning and Development has no authority to force the plan on any municipality, department officials feel that the principle of controlled development has already been recognized by the heads of local governments.

Don Mills, planned community near Toronto, gained a new factory when this one was opened by Kawneer Canada Ltd.; architect was Clare G. Maclean

BUILDERS LOOK FORWARD TO "WONDERFUL YEARS"

Members of the National House Builders Association held their 11th Annual Convention this July at the Hotel Palliser, Calgary, Alta.

President Gordon S. Shipp, in his concluding speech, predicted that the housing market would provide a great "growth situation" in the 1950's and '60's, and could rank with food, clothing and automobiles as one of the largest industries in the country.

Mr. Shipp also noted as significant the quick increase in building loans which followed the new National Housing Act permitting chartered banks to lend on real estate.

Other speakers at the convention included D. B. Mansur, president of Central Mortgage & Housing Corporation,

(*Continued on page 32*)

At the N.H.B.A. convention, left to right: R. G. Hughes, president of U. S. National Association of Home Builders; Mrs. Patrick E. Sullivan, president, Ladies' Auxiliary, Calgary Housebuilders Association, and Gordon S. Shipp, president of N.H.B.A.

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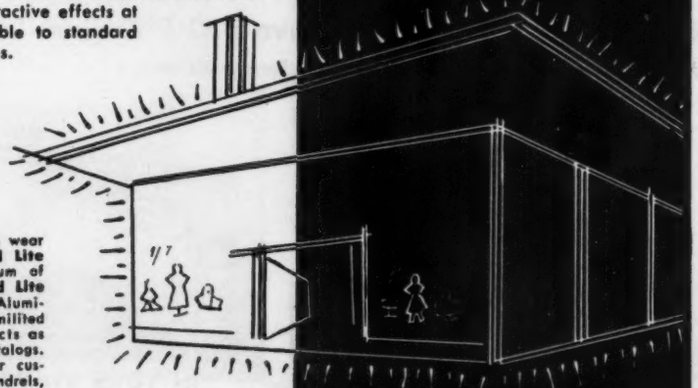

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Store Front Construction... Entrances... Doors... Windows... and Special Aluminum Building Materials

SAN FRANCISCO'S NEW
INTERNATIONAL AIRPORT

another

MONUMENT TO AIR TRAVEL

equipped with Schlage Locks

Each year over 115,000 airliners are expected to land and depart from the 30,000 feet of runways of San Francisco's new International Airport. The terminal building, planned to accommodate 5 million passengers yearly, is a veritable showcase of modern construction and convenience. The building boasts its own post office, luxury restaurant, children's nurseries, and working areas for 9,000 employees. An unusual feature is a photo-electric control that automatically opens and closes blinds keeping sunlight constant at all times.

The Schlage Locks installed on all doors reflect the detailed planning that has gone into this structure. Selected in durable Luster Sealed Aluminum finish, these fine locks will resist the effects of constant exposure to corrosive salt laden winds from near-by San Francisco Bay. These precision-made Schlage Locks will play an important part in reducing maintenance costs in this latest monument to air travel.

ARCHITECT

W. P. DAY

BUILDING CONTRACTOR

CLINTON CONSTRUCTION COMPANY

HARDWARE SUPPLIER

E. M. HUNDLEY HARDWARE CO.

LOCKS

SCHLAGE SATURN DESIGN

®SCHLAGE©

THE WORLD'S MOST IMITATED LOCK

SCHLAGE LOCK COMPANY

SAN FRANCISCO NEW YORK VANCOUVER, B.C.

CANADA

(*Continued from page 30*)

who attributed the current high rate of housing construction in Alberta to commuting farmers and immigration and natural population increases.

Members returned Mr. Shipp to the presidency for his second term, and also reelected Clarence L. Brown of Calgary as western vice president. R. K. Fraser, Hamilton, Ont., was elected eastern vice president, and Frank Murray of Toronto is the new treasurer.

United States builders were represented at the meeting by visitor R. G. Hughes, president of the National Association of Home Builders.

The Pro Shop for Chedoke Municipal Golf Course, at Hamilton, Ont., is built of dark brown concrete block, trimmed with light, natural wood and orange louvers; Stanley M. Roscoe, Hamilton, was the architect.

ARCHITECTS PRAISED FOR REDUCING SCHOOL COSTS

Research by individual architects has played an important part in reducing school construction costs, Toronto architect E. C. S. Cox declared in a recent address delivered at Midland, Ont. The per sq ft cost of schools, said Mr. Cox, has been reduced from around $12 to $14 a few years ago to today's cost of about $10, with no loss, he went on, of efficiency or of good design.

Pointing out that the architectural fee for schools is six per cent, Mr. Cox commended architects for automatically cutting their own earnings by reducing the cost to the client. "Architecture," he noted, "is a profession, not a business."

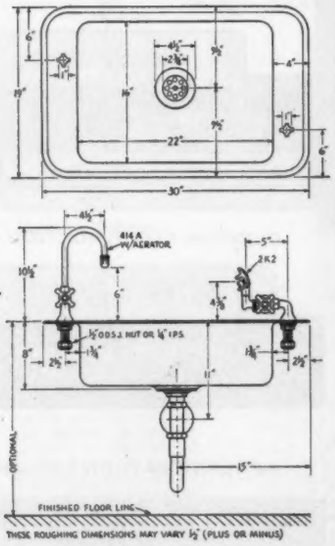
(*Continued on page 36*)

Contracts Awarded: Comparative Figures Compiled by MacLean Building Reports (in $ Million)

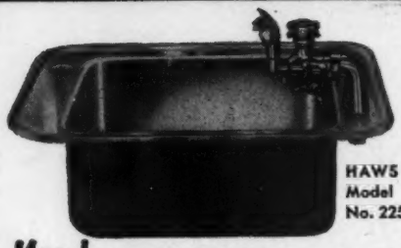
	June 1954	June 1953	Change
Residential	95.3	84.0	+11.2
Business	62.2	58.8	+ 3.4
Industrial	26.3	15.8	+10.5
Engineering	38.7	30.5	+ 8.2
Total	222.7	189.2	+33.5

Now!
THE POPULAR
HAWS
DECK-TYPE
DRINKING
FOUNTAINS
in STAINLESS STEEL

HAWS
Model No. 2350



HAWS Series 2300, Model No. 2350
(Pat. applied for)



HAWS
Model
No. 2255

Now! The HAWS stainless steel Series 2200 and 2300 with all the features that have made the white enamel cast iron HAWS Series 2000 so popular for school classrooms. Raised and sloped mounting rim that keeps water off deck or table top... VANDAL PROOF socket flanges and fittings...chrome plated sink strainer with non-removable grid... *and availability with any combination of HAWS faucets and fixtures.* For *Acid-Resisting Enamel* finish, specify HAWS Series 2000.

Write today for illustrated Detail Sheets on 2000, 2200 and 2300 Series!

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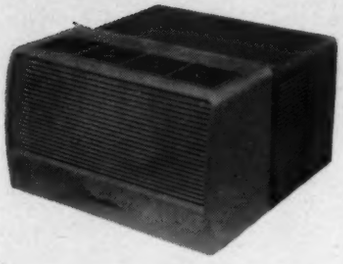
our 100TH year

OF SUCCESSFUL MANUFACTURING EXPERIENCE



NEW Attractive Window Units in 3 models, for commercial and residential use

Package Units—2, 3, 5, 7½ and 10 tons. Choice of Open or Semi-hermetic Compressors . . . and 15 ton packaged central type units.

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AIR CONDITIONING

Units Are Your Assurance of Client Satisfaction

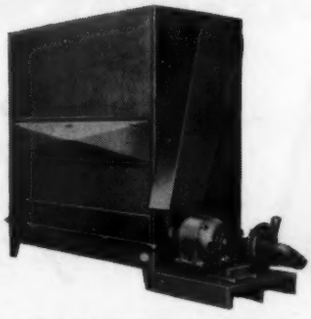
The Curtis line is precision-built to assure a long life of trouble-free service. You can specify Curtis air conditioning equipment with the assurance that it will never let you down.

- ✓ **Installation is fast and easy.**
- ✓ **Maintenance costs are low.**
- ✓ **Priced to meet competition.**
- ✓ **Smooth, quiet operation.**
- ✓ **A Curtis Unit for every job— a complete range of sizes and types.**

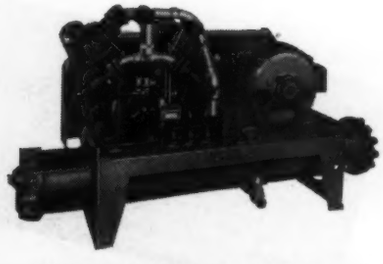
See Curtis data in Sweets Catalog File, and write for your free copy of NEW *Curtis* Architects' Air Conditioning Manual.

RESIDENTIAL . . . INDUSTRIAL . . . COMMERCIAL

Residential Cooling and Heating Units

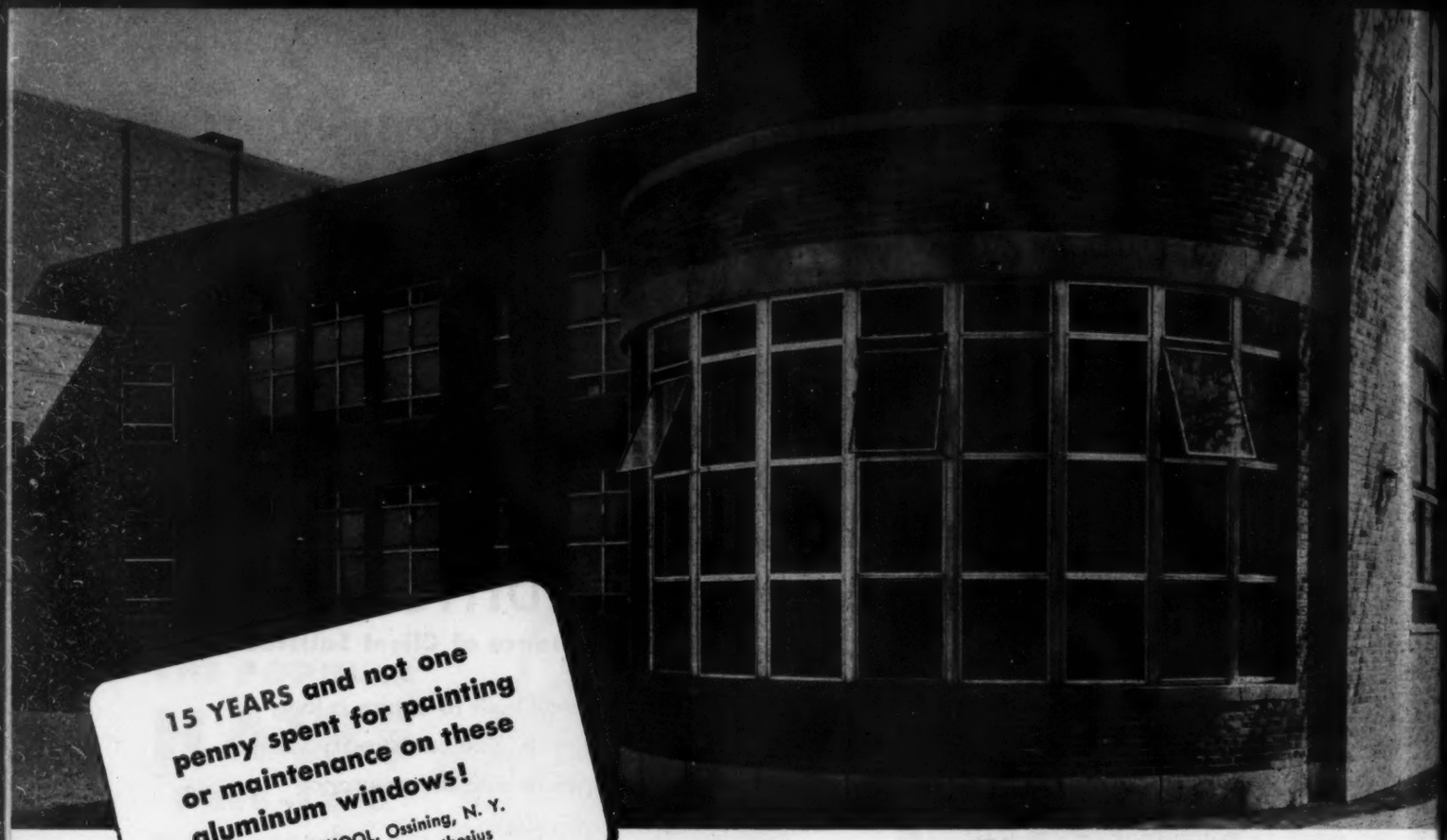


Air handling units, cooling towers, and evaporative condensers



Water Cooled Condensing Units— through 80 tons

Curtis **REFRIGERATING MACHINE DIVISION**
of Curtis Manufacturing Company
1986 Kienlen Avenue, St. Louis 20, Missouri



15 YEARS and not one penny spent for painting or maintenance on these aluminum windows!

PARK SCHOOL, Ossining, N. Y.
Architect: Frederick Mathesius

HERE'S PROOF YOU CAN STOP NEEDLESS AND WASTEFUL MAINTENANCE EXPENSE

in schools, hospitals, housing, commercial and industrial buildings, by insisting on

Quality Approved

ALUMINUM

SCHOOL
Winchester Elementary School,
New Haven, Conn.
Architect: Caproni Associates
Contractor: Fusco-Amatruda Company

COMMERCIAL BLDG.
Texaco Bldg., New Orleans, La.
Architect: Claude E. Hooten
Contractor:
Haase Construction Co., Inc.

APARTMENT
Lenoblire Hoese, Washington, D. C.
Architect: George T. Santmyers
Contractor: Leahin Construction Co.

HOSPITAL
Lankenau Hospital,
Philadelphia, Pa.
Architect: Vincent G. Kling
Contractor: Work & Co.

EXPERIENCE SHOWS . . . ALUMINUM WINDOWS SAVE MANY DOLLARS ON PAINTING ALONE

YES, Aluminum Windows actually DO SAVE YOU MONEY... They do help keep building maintenance expense at a minimum. Experience in hundreds of schools *(like the one shown on opposite page)*, hospitals, and other types of buildings erected 15 to 25 years ago shows that not one penny was ever required for painting the aluminum windows.

That's why today, more and more architects are specifying "Quality-Approved" aluminum windows for every new building project they design. That, too, is why maintenance-conscious building owners and managers insist on "Quality-Approved" aluminum windows.

Aluminum windows, whether they be double-hung, casement, projected or awning type, are the only practical, reasonably-priced windows that *never* require painting... that cannot rust or rot, warp or swell... that retain their trim, modern-looking appearance for the life of the building.

A WORD OF CAUTION—Remember, that only aluminum is rustproof through and through. Mere surface protection against rust is not enough. Wear, unintentional scratches in delivery or installation may nullify any protective surface coating and soon require painting. "Quality-Approved" aluminum windows are available through many manufacturers in sizes and styles that fit any exterior design treatment. For your protection and full satisfaction, insist on the "Quality-Approved" Seal when you specify or OK specifications.

For a copy of our 1954 window specifications book and names of approved manufacturers, consult Sweet's Architectural Catalog (Section 16a/ALU) or write direct to Dept. AR-9.

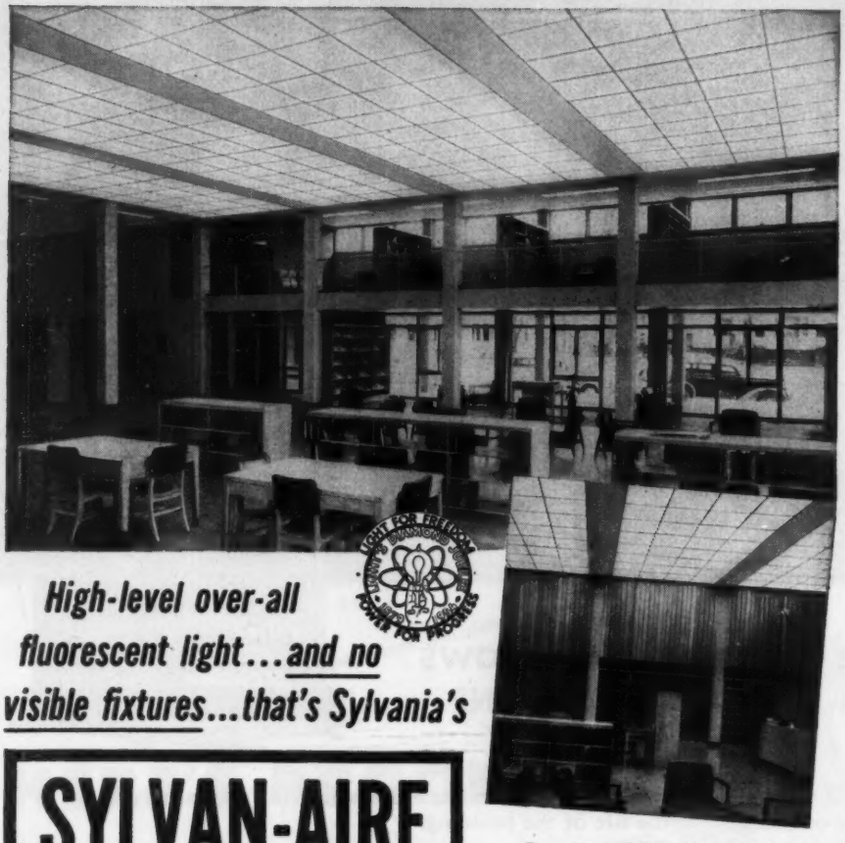
Aluminum Window Manufacturers Association

74 Trinity Place, New York 6, N. Y.

MEMBERS: Alcasco Products, Inc., Muskegon, Mich. • Aluminum Home Products Co., Knoxville, Tenn. • The Wm. Bayley Co., Springfield, Ohio • Ceco Steel Products Corp. *(Sterling Aluminum Window Division)*, Chicago, Ill. • Cupples Products Corp., St. Louis, Mo. • Fentron Industries, Inc., Seattle, Wash. Michael Flynn Mfg. Co., Philadelphia, Pa. • General Bronze Corp., Garden City, N. Y. • Hunter Mfg. Corp., Bristol, Pa. • Metal Arts Mfg. Co., Inc., Atlanta, Ga. • Miami Window Corp., Miami, Fla. • Reynolds Metals Co. *(Parts Division)*, Louisville, Ky. • J. S. Thorn Co., Philadelphia, Pa. • Timm Industries, Inc., Los Angeles, Calif. • Universal Window Co., Berkeley, Calif. • Ware Laboratories, Inc., Miami, Fla. • Windalume Corp., Kenvil, N. J.

WINDOWS

Here's a New Sylvania
LIGHTING SYSTEM!



High-level over-all fluorescent light... and no visible fixtures... that's Sylvania's

SYLVAN-AIRE

Two views of SYLVAN-AIRE Lighting System in High Point, North Carolina Library.

This SYLVAN-AIRE system actually serves three purposes.

1. It provides a source of soft but ample over-all light.
2. Made of corrugated, translucent plastic, it imparts a new beauty and character to any room.
3. Designed with alternating acoustical strips or wedges to help hold sound to comfortable levels.

Quick, easy installation and extremely low maintenance costs are other big advantages. For new descriptive literature write to Dept. 4X-1309 at Sylvania.

WINS ARCHITECT'S HIGH PRAISE

"We are especially pleased with your Sylvan-aire System," writes Mr. L. F. Voorhees, A. I. A., designer of this building. "Where we had hoped for 45 ft. candles, with this system we were able to design and achieve *eighty*... without glare! From the aesthetic angle, this ceiling blends with the design simplicity for which we were striving."

SYLVANIA

Sylvania Electric Products Inc., 1740 Broadway, New York 19, N. Y.

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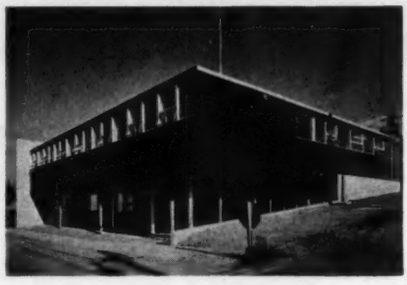
LIGHTING • RADIO • ELECTRONICS • TELEVISION

THE RECORD REPORTS

CANADA

(*Continued from page 32*)



New buildings in Vancouver include, above, St. Anselm's Anglican Church, for which the Vancouver firm Semmens and Simpson were architects; below: architect Robert R. McKee's design for the Modern Interiors Store

NEWS NOTES

Public relations programs have been initiated by both the Architectural Institute of British Columbia and the Province of Quebec Association of Architects; chairman of the A.I.B.C. public relations committee is Hunter J. White, of Vancouver, who will work with consultants McConnell Eastman & Co. Ltd. . . . **The Pilkington Glass Traveling Scholarship,** awarded to architectural graduates, was presented this year to Claude Leclerc of the Ecole des Beaux-Arts, Montreal; runners-up were Maurice E. Archambault, McGill University, second prize; and Lucien Delean, University of Toronto, third prize. . . . **The Association of Professional Engineers** has elected to its Dominion Council: Lt. Col. W. L. Sagar, Province of Ontario — president; R. F. Shaw, Province of Quebec — vice president; J. E. Clarke, Province of Nova Scotia — Executive Secretary; and J. M. Muir, Province of Ontario — secretary-treasurer; also serving on the council is Dean R. M. Hardy, past president, from Alberta.

(*More news on page 38*)

Have you seen the new Nesbitt Series C unit heater?

IT'S GOT EVERYTHING WE'VE WANTED...

FREE-STANDING

"Nesbitt's new Publication 403 just arrived and it shows their complete line of deluxe cabinet unit heaters . . . and, Boss, they sure are beauties! Why,—"

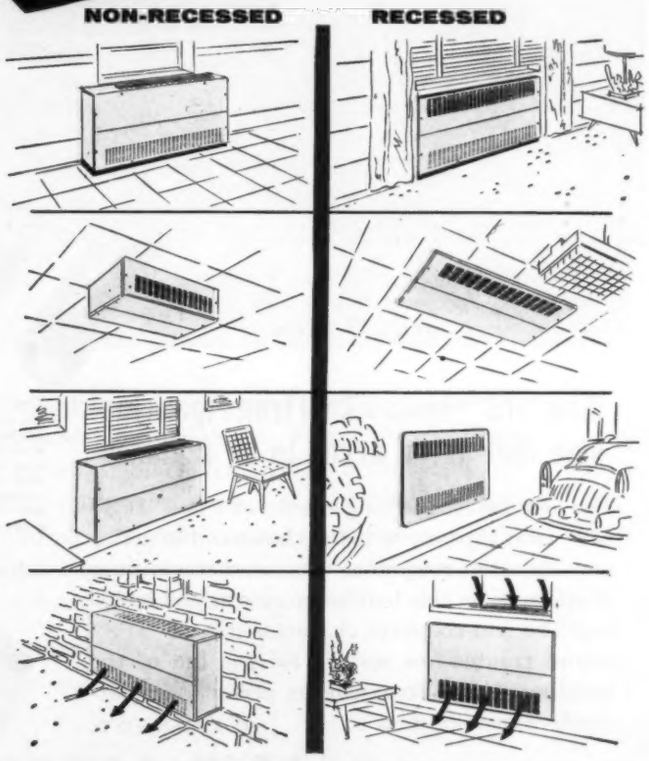
"Yes, Harry, I—"

"you know, Boss, this is the most flexible line of unit heaters I've ever seen. What a range of capacities—in both steam and hot water! The small direct-drive unit handles from 269 to 413 c.f.m. and gives from 17,700 to 35,100 B.t.u. per hour. The larger belt-drive units, with two to five fans, range from 342 to 1885 c.f.m., standard air, and from 24,000 to 148,000 B.t.u.—"

"Yes, Har—"

"But best of all, Boss, you can mount them any way you want—floor, horizontal, wall, or inverted—and free-standing, semi-recessed two ways, or fully recessed. The discharge or intake can be face, top, or bottom—direct or with ducts. The casings have fronts that conceal the rough opening to save plastering headaches. And you know Nesbitt construction!—I think these are just the units we need for that new—"

"HARRY! I've been trying to tell you . . . I received the new publication, too, and I've already sent you a memorandum to use Nesbitt Series C's on the terminal job!"



Nesbitt SERIES C DELUXE CABINET HEATERS

Manufactured and Sold by John J. Nesbitt, Inc., Philadelphia 36, Pa. • Send for Publication 403

TWO PROGRAMS READIED UNDER LEASE-PURCHASE

THE NEW LEASE-PURCHASE PROGRAM for providing badly-needed public buildings for the Federal government was given a fast start by Congress after President Eisenhower signed the bill in July. By mid-August the House Public Works committee had approved and sent to its counterpart in the Senate a list of 27 projects estimated to cost more than $43 million.

This was the initial step in the revival of a public buildings program that had been dormant, if not non-existent, for nearly two decades.

Jobs for Architects

Private architects were to participate fully in both the Public Buildings Service of the General Services Administration and the Post Office construction efforts. Peter Strobel, new PBS Commissioner, had assured the American Institute of Architects that his policy called for design of all the PBS work by practicing architects. The Post Office Department indicated early that its own Bureau of Facilities staff would handle only the schematic drawings of prototypes and perhaps a limited number of project plans. The Bureau was not staffed to handle any large building program and for that reason most of the work was being prepared for handling in the field.

In announcing its policies for handling the lease-purchase details, PBS said it would select competent private architectural firms, or combinations of firms, to design the structures approved by the Public Works committees of Congress and the Budget Bureau. When construction of a particular project is decided upon, announcement to that effect

(*Continued on page 304*)

Programs for the Aging

THE CURRENT CONCERN with the special problems of the "senior citizens" who form an increasing proportion of this nation's population is reflected in bills introduced late in the recent closing session of the 83rd Congress by Senator Irving Ives and Rep. Frederick Coudert (both Republicans of New York). The identical bills would set up a "Commission on Programs for the Aging" to "study and investigate problems stemming from the increasing proportion of aging persons in the Nation's population, and remedial measures including but not restricted to care and services in the home, use of foster home facilities, recreation centers and provision of institutional facilities for the chronically ill." The bills note that mere increase in custodial facilities is not enough: "a more practical as well as a more constructive approach to the problems of the aging requires the creation and expansion of facilities for their care and supervision outside of institutions and, as far as possible, in a normal community environment designed to encourage their continued interest and participation in the life of the community." Both bills were referred to committee; any Congressional action must await the new session.

For longest service... for good appearance

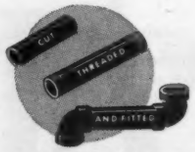
St. Patrick's Academy, Chicago, Illinois
Architects & Engineers: Belli & Belli
Plumbing Contractor: L. G. Keefe

Clow "IPS"* (threaded) Cast Iron Pipe...the pipe that never needs to be replaced

The long life... and long lengths of Clow "IPS" Cast Iron Pipe made it the choice of the architect for all downspouts, vents and waste lines 3" and over in this handsome new school building. The non-corrosive characteristics of "IPS" assure trouble-free service for the life of the building. Its 18-foot lengths permit trim, attractive installations. *Iron Pipe Size O. D.

Clow (threaded) Cast Iron Pipe has same O.D. as steel pipe, is available with plain or threaded ends, in 3, 4, 5, 6, 8, and 10" sizes in 18' random lengths. Also available with integral calking hub on one end (other end plain) in 18' random lengths in 4, 6, and 8" sizes.

Clow Cast Iron Pipe can be...



on the job, with ordinary tools of the piping trade.

JAMES B. CLOW & SONS
201-299 North Talman Avenue • Chicago 90, Illinois

WHOLESALERS OF PLUMBING AND HEATING SUPPLIES
Publishers of the Clow Bulletin

MILLS MOVABLE WALLS GIVE YOU

Space Control

FOR PERMANENT EFFICIENCY

• National Malleable and Steel Castings Company employs *Space Control* throughout its new Technical Center to make sure of future as well as present efficiency in its use of space for advanced testing and research. Mills Movable Metal Walls will keep these interiors flexible, always adaptable to changing requirements, because they can be moved to fit new layouts—quickly, easily and at very low cost—whenever the need occurs. Complete changes can usually be made overnight or during a week end, sometimes in a matter of hours, without commotion, dust, debris or interruption of normal space usage.

Executive Office, Technical Center of National Malleable and Steel Castings Company, Cleveland, Ohio. Dalton & Dalton and Associates, Architects.

With this efficient mobility Mills Walls combine distinctive architectural design, attractive appearance and structural stability, achieved by Mills exclusive all-welded flush panel construction. Available in a wide variety of pleasing colors in baked-on enamel finishes, they require no maintenance except occasional washing to keep them looking fresh and new.

Write for the new 68-page Mills Catalog or see it in Sweet's Architectural File.

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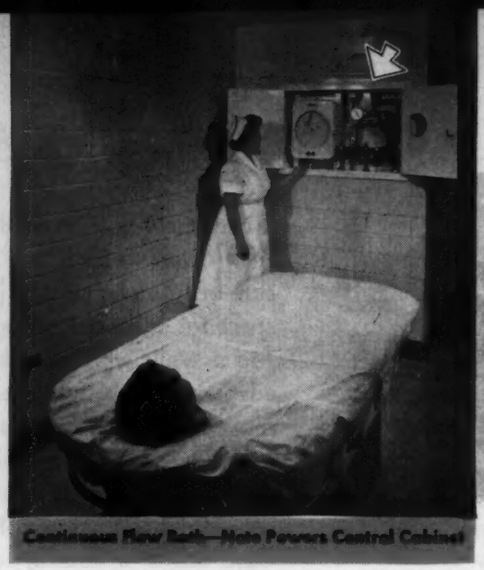
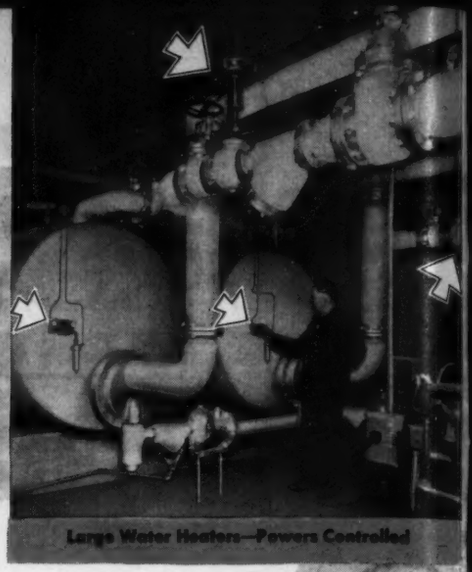
THE MILLS COMPANY • 955 Wayside Road • Cleveland 10, Ohio

Representatives in All Principal Cities

Powers Thermostatically Regulated Showers



Continuous Flow Bath—Note Powers Control Cabinet



Large Water Heaters—Powers Controlled

HINSDALE, ILL. SANITARIUM AND SHOWS DIVERSITY OF POWERS

★ FOR HEATING ★ AIR CONDITIONING ★ WATER HEATERS ★ HYDRO-THERA[illegible] ★ SHOWER [illegible]

Few 200 bed institutions are as well equipped to save and prolong lives as Hinsdale's Sanitarium and Hospital

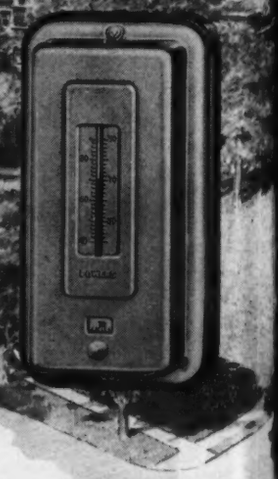
It's six operating rooms, X-Ray department (including a 250,000 volt deep-therapy machine for cancer treatment), delivery rooms, beautiful nursery and obstetrical department are all equipped with the best modern equipment.

Outstanding Polio Treatment Center. Facilities here can accommodate up to 30 polio patients and keep them in complete isolation.

Three iron lungs, rocking beds, steam rooms and many types of hydro-therapeutic baths under the care of skilled attendants provide patients with the best service obtainable.

Comfort and Safety of Patients here is assured by the dependability of Powers thermostatic controls used throughout the building.

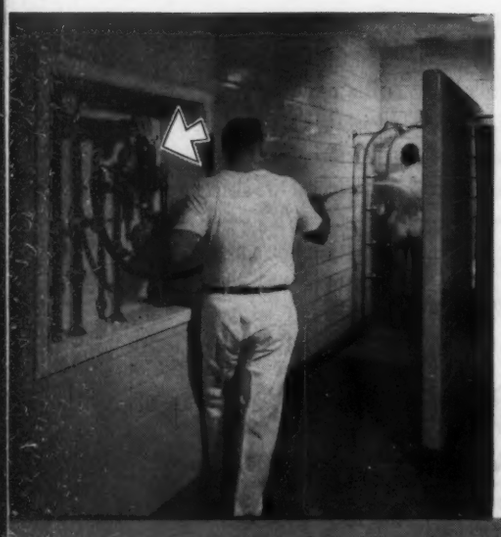
When you want help in selecting the right type of control for hospitals or any other type of building, call in an experienced Powers engineer. There's no obligation.

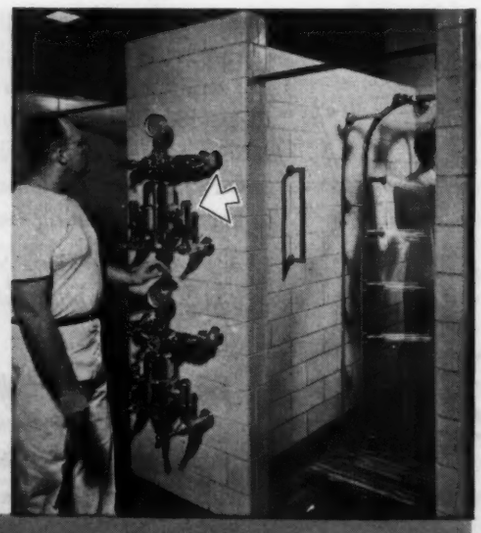


THE POWERS REGULATOR COMPANY

SKOKIE, ILL. • Offices in Over 50 Cities in U. S. A., Canada and Mexico

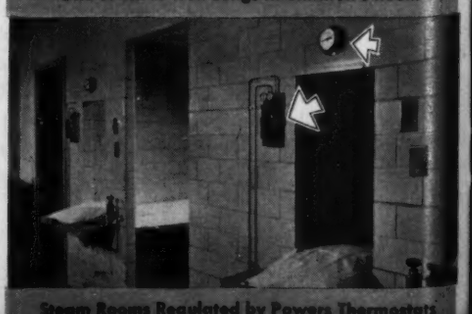
OVER 60 YEARS OF AUTOMATIC TEMPERATURE CONTROL





Scotch Douche and Hydrotherapeutic Showers are Both Powers Controlled

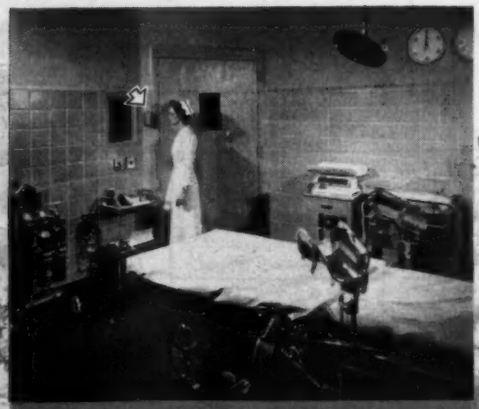
One of Three Iron Lungs in Children's Room



Steam Rooms Regulated by Powers Thermostats

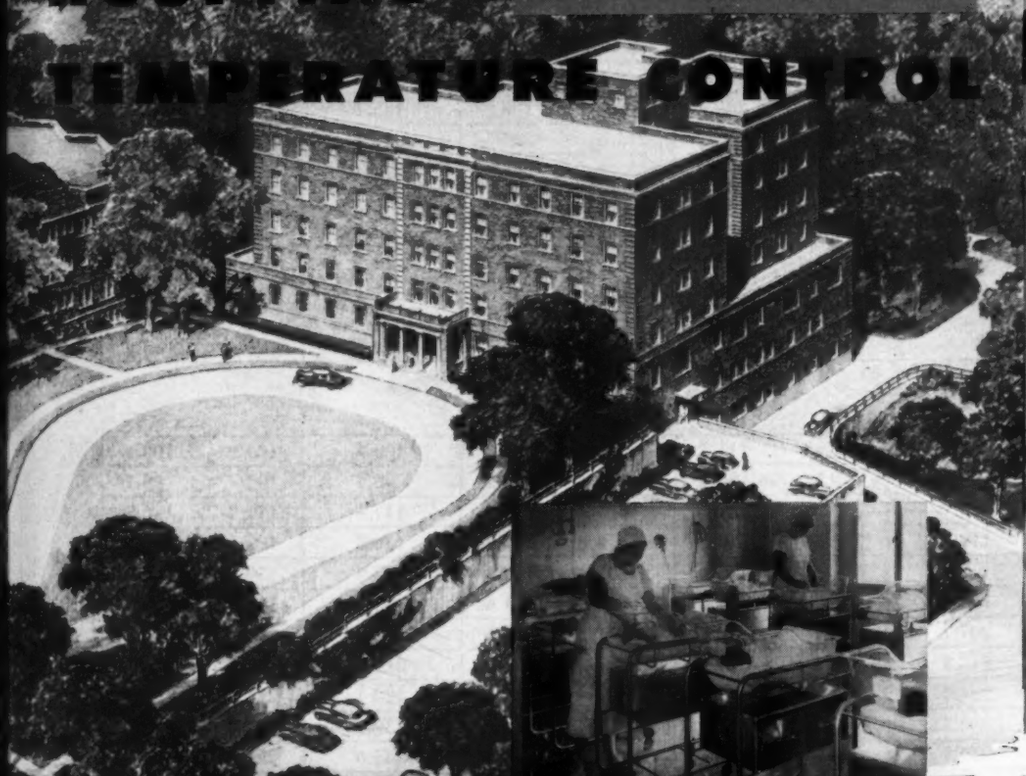
HOSPITAL TEMPERATURE CONTROL

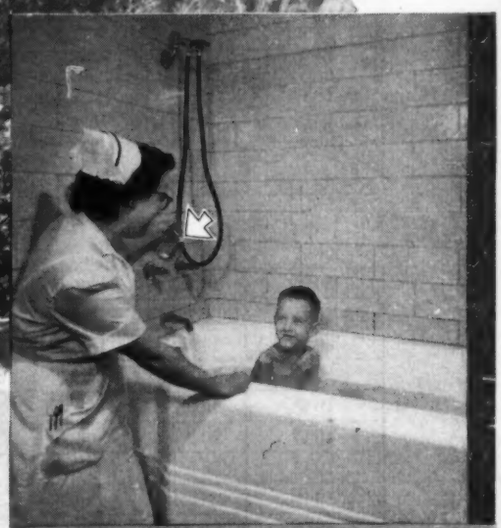
Deep Therapy X-Ray Room



Air-Conditioned Delivery Room

Powers Control on Sitz Bath with Raised Base

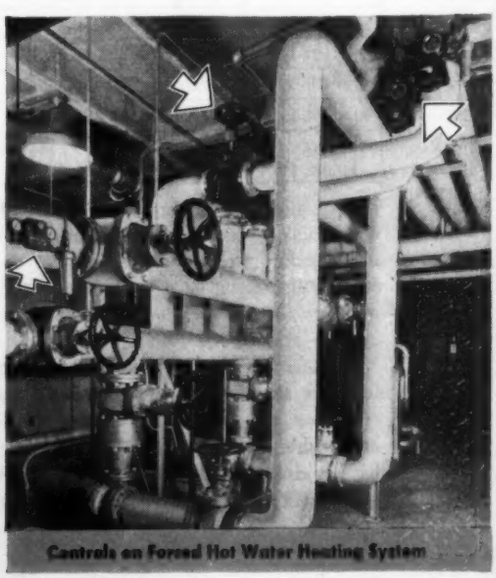




Treatment Bath for Children. Note Powers Mixer

Section of Nursery

Powers Controlled Whirlpool Bath for Polio Patients



Controls on Forced Hot Water Heating System

CONSTRUCTION COST INDEXES

Labor and Materials — **U. S. average 1926–1929 = 100**

Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assocs., Inc.

NEW YORK

Period	Residential		Apts., Hotels Office Bldgs.	Commercial and Factory Bldgs.	
	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1940	126.3	125.1	132.2	135.1	131.4
1946	181.8	182.4	177.2	179.0	174.8
1947	219.3	222.0	207.6	207.5	203.8
1948	250.1	251.6	239.4	242.2	235.6
1949	243.7	240.8	242.8	246.4	240.0
1950	256.2	254.5	249.5	251.5	248.0
1951	273.2	271.3	263.7	265.2	262.2
1952	278.2	274.8	271.9	274.9	271.8
1953	281.3	277.2	281.0	286.0	282.0
Apr. 1954	283.1	277.1	290.8	297.0	293.5
May 1954	285.0	277.9	293.3	301.6	295.2
June 1954	285.2	278.1	293.6	301.8	295.4
	% increase over 1939				
June 1954	130.9	127.2	124.6	126.2	127.0

ATLANTA

Period	Residential		Apts., Hotels Office Bldgs.	Commercial and Factory Bldgs.	
	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel
1930	82.1	80.9	84.5	86.1	83.6
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1940	91.0	89.0	96.9	98.5	97.5
1946	148.1	149.2	136.8	136.4	135.1
1947	180.4	184.0	158.1	157.1	158.0
1948	199.2	202.5	178.8	178.8	178.8
1949	189.3	189.9	180.6	180.8	177.5
1950	194.3	196.2	185.4	183.7	185.0
1951	212.8	214.6	204.2	202.8	205.0
1952	218.8	221.0	212.8	210.1	214.3
1953	223.3	224.6	221.3	221.8	223.0
Apr. 1954	218.7	218.2	222.5	224.3	224.4
May 1954	218.7	218.2	222.5	224.3	224.4
June 1954	217.2	216.5	221.4	223.4	223.4
	% increase over 1939				
June 1954	151.6	160.5	132.8	129.4	135.9

ST. LOUIS

1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1940	112.6	110.1	119.3	120.3	119.4
1946	167.1	167.4	159.1	161.1	158.1
1947	202.4	203.8	183.9	184.2	184.0
1948	227.9	231.2	207.7	210.0	208.1
1949	221.4	220.7	212.8	215.7	213.6
1950	232.8	230.7	221.9	225.3	222.8
1951	252.0	248.3	238.5	240.9	239.0
1952	259.1	253.2	249.7	255.0	249.6
1953	263.4	256.4	259.0	267.6	259.2
Apr. 1954	263.5	256.3	263.3	272.9	265.0
May 1954	263.5	256.3	263.3	272.9	265.0
June 1954	265.2	258.3	264.3	273.6	265.9
	% increase over 1939				
June 1954	140.7	141.4	122.7	128.4	123.4

SAN FRANCISCO

1930	90.8	86.8	100.4	104.9	100.4
1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1940	106.4	101.2	116.3	120.1	115.5
1946	159.7	157.5	157.9	159.3	160.0
1947	193.1	191.6	183.7	186.8	186.9
1948	218.9	216.6	208.3	214.7	211.1
1949	213.0	207.1	214.0	219.8	216.1
1950	227.0	223.1	222.4	224.5	222.6
1951	245.2	240.4	239.6	243.1	243.1
1952	250.2	245.0	245.6	248.7	249.6
1953	255.2	257.2	256.6	261.6	259.7
Apr. 1954	253.6	244.6	262.2	270.4	264.8
May 1954	254.3	245.5	262.3	270.5	265.0
June 1954	257.2	249.5	263.3	270.8	265.8
	% increase over 1939				
June 1954	143.6	151.2	124.3	122.1	128.2

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926–29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear regularly on this page.

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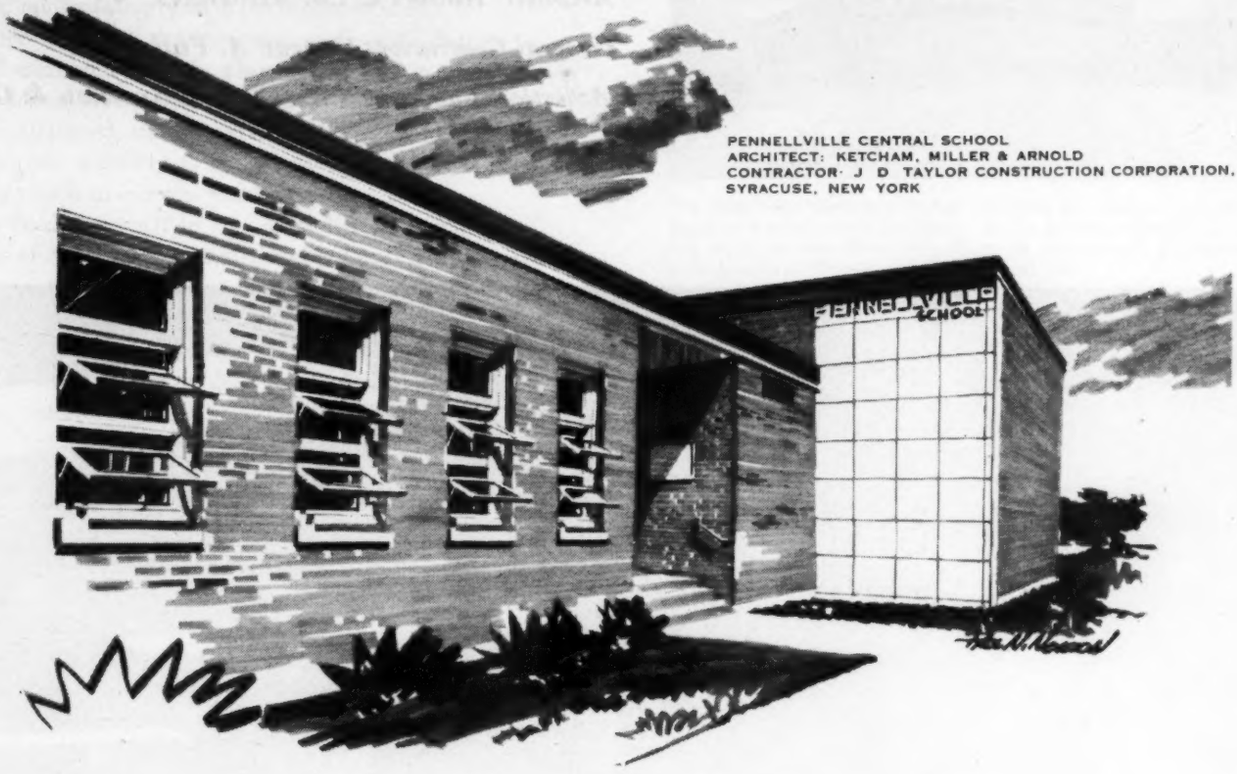
Pella® MULTI-PURPOSE WINDOWS



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ARCHITECT: KETCHAM, MILLER & ARNOLD
CONTRACTOR· J D TAYLOR CONSTRUCTION CORPORATION,
SYRACUSE, NEW YORK

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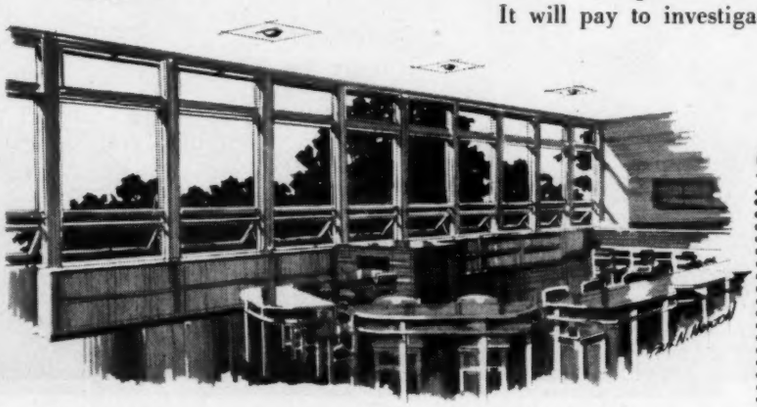

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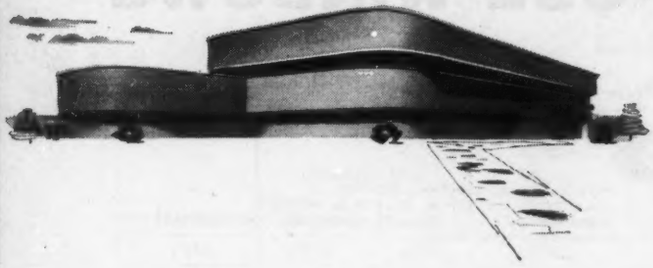
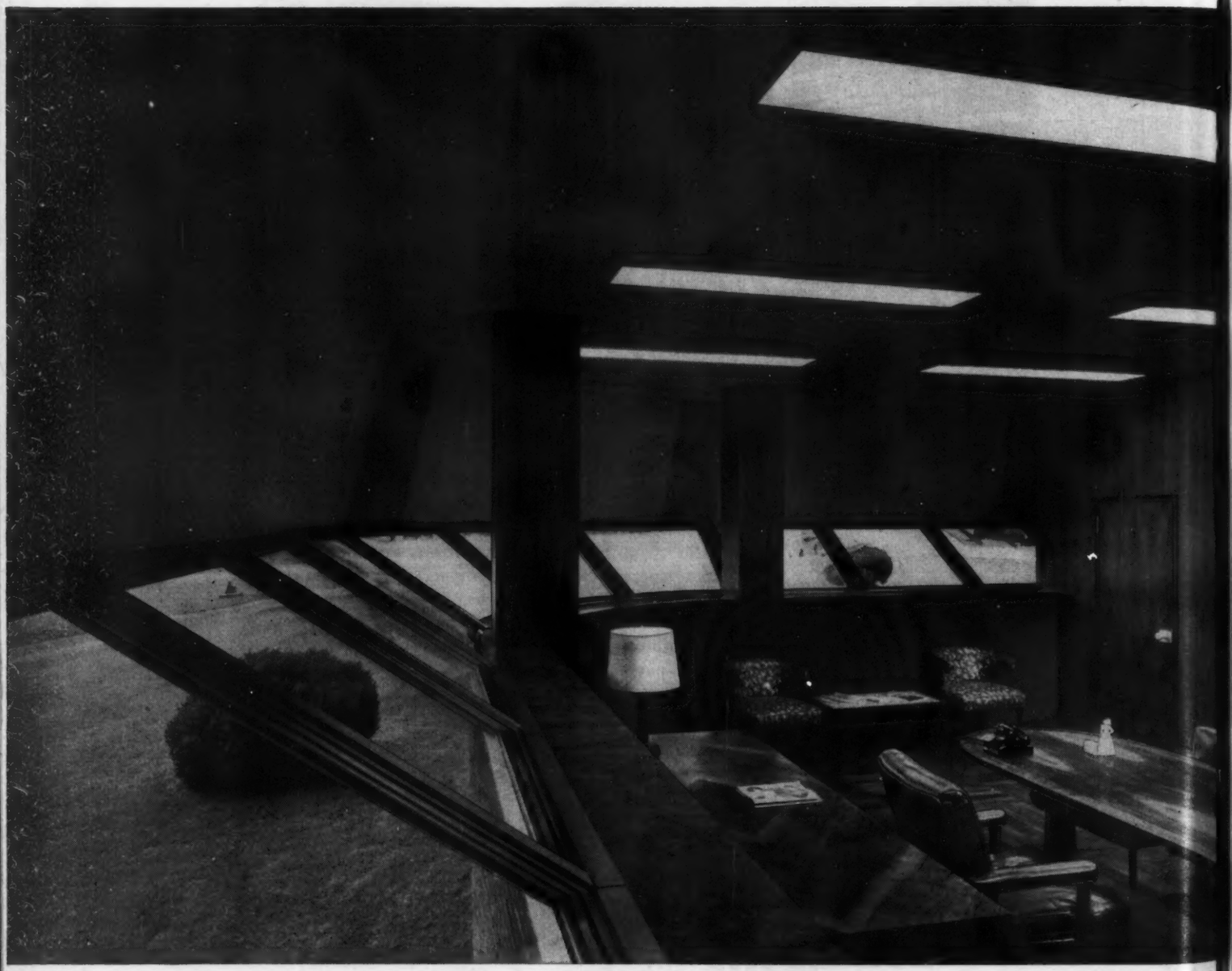


Architect: **Robert & Co. Associates**

General Contractor: **George A. Fuller Co.**

Acoustical Contractor: **W. Morton Northen & Co.**



Tight weather seals around the window sash, perfect shading of the windows, and the relatively small area of glass help save as much as 10% on air-conditioning costs. Noise is greatly reduced in this office by the efficient Cushiontone ceiling.

Springmaid's controlled environment includes sound conditioning

New ideas in environmental controls make the headquarters of The Springs Cotton Mills one of the most interesting and unusual structures in the industrial field.

Windows are set at an inverted angle of 45 degrees to permit maximum daylight illumination with a minimum infiltration of the sun's infrared rays. The entire building is air conditioned, and temperature can be controlled to a ± 1 degree, humidity to ± 2%. Walls contain radiant heating panels to provide winter comfort.

The finishing touch to this controlled environment is ceilings of Armstrong's sound-absorbing materials that reduce noise in the office areas.

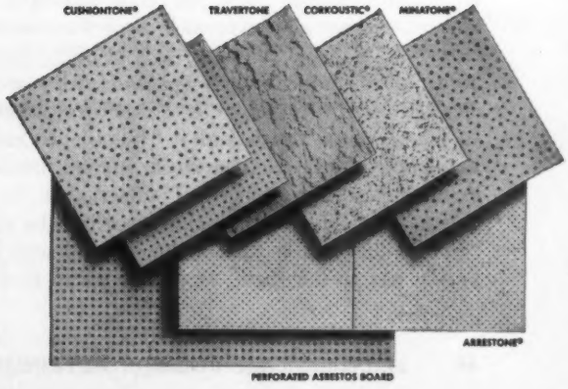
Because of its beauty and incombustibility, Travertone, a fissured mineral wool tile, was chosen for many of the executive offices. The large general office spaces called for low-cost Cushiontone, a perforated wood fiber material. In the main lobby, a metal-pan ceiling of Arrestone absorbs up to 85% of disturbing noise, ties in decoratively with the metal fixtures and furniture.

Get full details on Travertone, Cushiontone, Arrestone, and Armstrong's entire line of sound-conditioning materials from your Armstrong Acoustical Contractor. For the free booklet, "How to Select an Acoustical Material," write Armstrong Cork Company, 4209 Rock Street, Lancaster, Pennsylvania.

The upside-down window design provides all climate control advantages of a windowless building. In the general office areas, distracting noise is controlled by ceilings of Armstrong's Cushiontone, an easy-to-clean, white-painted acoustical tile.

Discarded machine parts from Springs' own plants have been used to make most of the furniture throughout the offices. In the main lobby, the sound-absorbing ceiling of Arrestone with a bare mill finish blends with the metal furniture and fixtures.

An elaborate control panel on the desk and a conference table that rises from the floor when needed are two of the many unusual features of Col. Elliot Springs' private office. Here, too, is a sound-muffling ceiling of Armstrong's Travertone.



ARMSTRONG'S ACOUSTICAL MATERIALS

Chartres, *St. John the Baptist, 13th c.*

STAINED GLASS

The Lost Art: A survey of A Thousand Years of Stained Glass. By Robert Sowers. Wittenborn and Co. (38 E. 57th St., New York, N. Y.) 1954. 7¼ in. by 9¾ in., 84 pp., illus. $4.00.

BY EMIL FREI

President of Emil Frei, Inc., designers, manufacturers of stained glass. Winner A.I.A. Craftsmanship Award for stained glass, 1953.

It is pleasant to scan a work which deals with visual subject matter and find that, without reference to the text, the story is clear. It begins in great communal glory; weakens, stumbles, and falls; is revived in its external aspect; its essence is sensed by greater individualistic spirits, and a pattern of coming events begins to unfold. We have too often been told by the artist that his means of communication is not words, and then have listened to interminable verbosity. Mr. Sowers resorts to the excellent device of appending supplementary notes which permit his text to remain fluent.

Little imagination is needed to see, in the "Alfred Jewell" and similiar examples of cloisonne enamels, the source material for stained glass. In the eighth century illuminations by the monks of St. Gall, and the twelfth century drawings from the life of St. Guthlac, the character of the eleventh and thirteenth century windows seem to evolve.

Before the eleventh century the visual works of man revealed themselves by the light reflected from their surfaces. The tonal and chromatic scales remained within the limits set by the pigments and materials employed. Suddenly a biblical message shines down in fiery translucency from the clerestory of the Cathedral of Augsburg. Stained glass is born. Although its advent is heralded by works in other mediums, it is revealed to us in its own right at full stature. In the words of Mr. Sowers it "bursts into history in all of its mature glory." Neither words nor illustrations can communicate the vibrant charm of stained glass. In the following sentence the author shows how conscious he is of this fact: "For all that can be said of the effect of such windows, one simply has to see them, especially where they exist still in something like their original setting; at once cold and fiery — luminous as if themselves the source of light — incandescent, icy prisms, mapping the cosmology of an ideal."

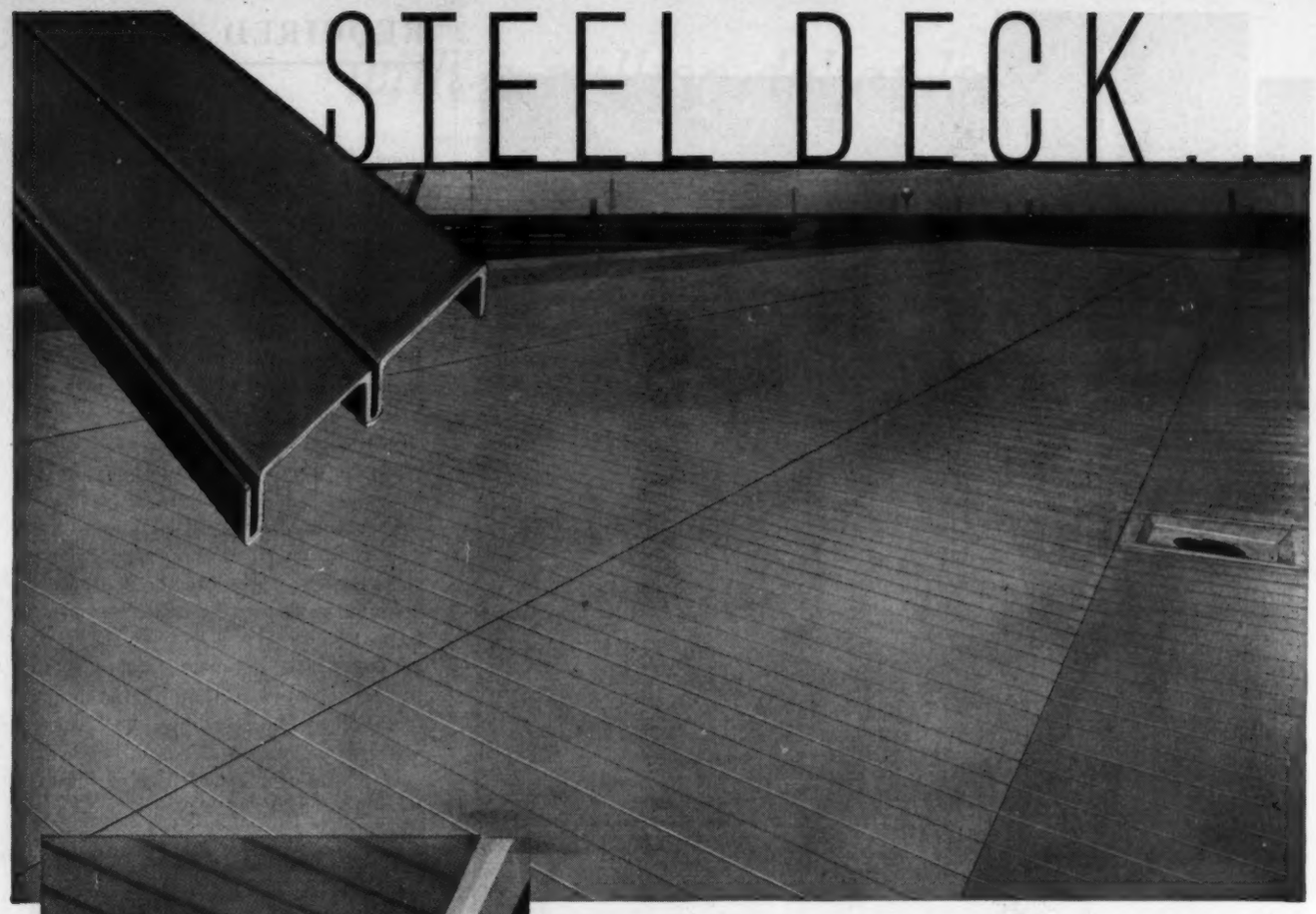
The author then takes us downward to "The Triumph of Naturalism," making it clear that the easel painter was not concerned with place, and not too much with space. He painted to satisfy the ego of the wealthy patrons who sprouted with the advent of industrialism, and to build up their collec-

(*Continued on page 48*)

St. Gall, *Codex 51, St. Luke. c. A.D. 750*

Illustrations on this page are two of seventy-five plates, including three in color, the author (who is a stained glass artist) used to illustrate the text

STEEL DECK...



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Built-up saddles are eliminated in Steel Deck Roofs. Purlins can be set to create valleys at sump locations in the drainage area. Steel Deck can be warped to conform. No additional deck plates are required—no cutting, fitting or bending necessary.

SAFEST, because it's STEEL... MOST PRACTICAL, because it's LIGHT WEIGHT!

New Steel Deck roof construction methods put Steel Deck away ahead of other types of deck material—why? . . . because it is STEEL. New roof building methods provide effective safeguard against pitch seepage under extreme fire conditions. Now, more than ever before, Steel Deck stands out as the most practical and most logical deck material available for modern, permanent, firesafe roof construction. The reason for this is simple . . . the over-all cost of a Steel Deck roof is less than any other type of roof. Steel Deck's light weight, and the fact that it can be insulated to the exact degree to meet local requirements, permits substantial savings in the supporting structure—total dead roof load will prove to be less than any other type in any given locality. Mahon Steel Deck is available in Galvanized or Enamel Coated Steel . . . stiffening ribs are vertical—no angular or horizontal surfaces where troublesome dust may accumulate. In the enamel coating process, the metal is chemically cleaned, phosphated, and treated with a chromic acid solution to provide paint bond, and the protective coating of synthetic enamel is baked on at 350° F. prior to roll-forming. Consider these extra-value Mahon features. See Sweet's Files for complete information, including details and Specifications, or write for Catalog B-55-B.

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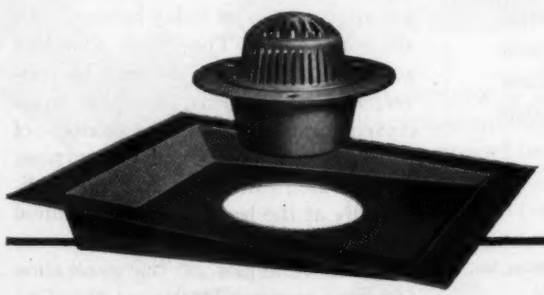
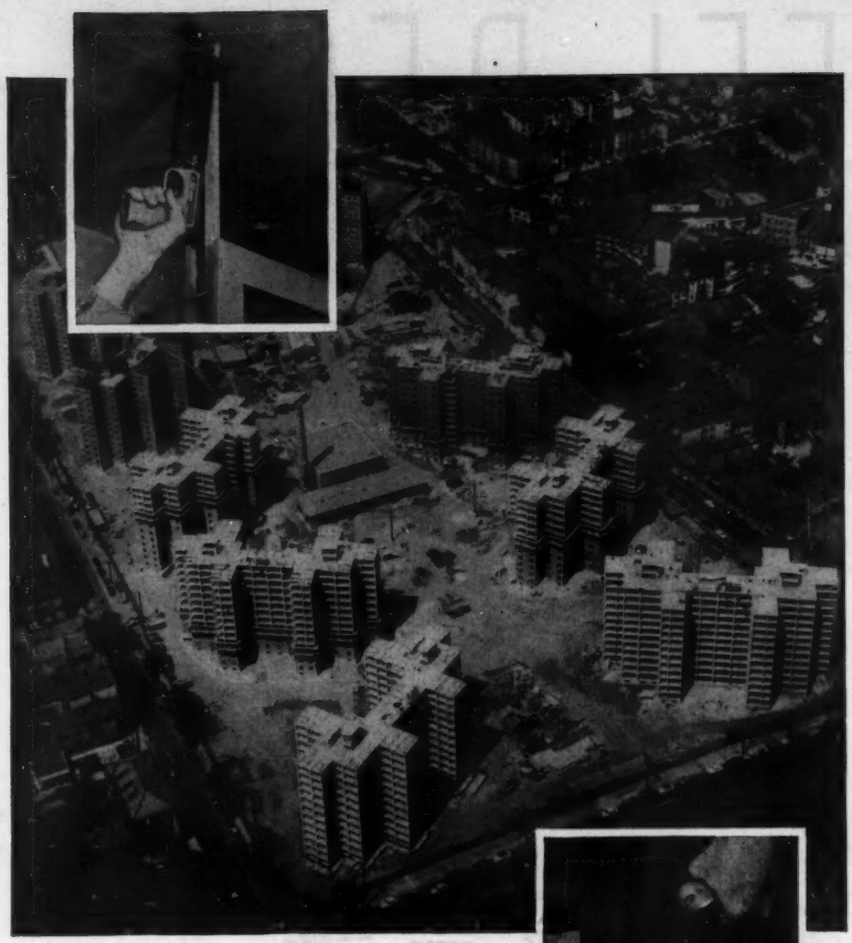


SUMP RECESSES and SUMPS

Mahon Roof Sump Recesses for use with Mahon Steel Deck can be furnished to fit any roof pitch. Mahon Cast Iron Sumps can also be furnished for 4", 5", and 6" conductors.

MAHON



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Speed and economy resulted from the use of RAMSET SYSTEM to anchor 10,000 interior doors top and bottom in the low-rent housing project at Newark, N. J.

The struts and frames were guided into proper position, and anchored to the poured concrete ceiling and floor with a RAMSET JOBMASTER Fastening Tool and Tru-Set Fasteners. Less than a minute was required to provide a firm anchor.

Similarly, high-speed, low-cost RAMSET SYSTEM will solidly fasten almost anything into even the hardest concrete or mild structural steel up to 1″ thick. Ask your RAMSET dealer to demonstrate how this most modern method will reduce costs and complete the work faster. Or, write us, for details in *Specification Manual*.

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FIRST IN POWDER ACTUATED FASTENING — AN Olin PRODUCT

REQUIRED READING

(*Continued from page 46*)

tions. Stained glass went into hibernation along with all those arts which, by their nature, must respect place, space, community, and be integrated into the economy of their time. Illustrations showing the nadir of the downward trend could have been omitted since they mar an otherwise beautiful book without serving a compensating purpose. I do not like the before — after or the good-bad approach. That which is negative has no great bearing on the end result in a living art.

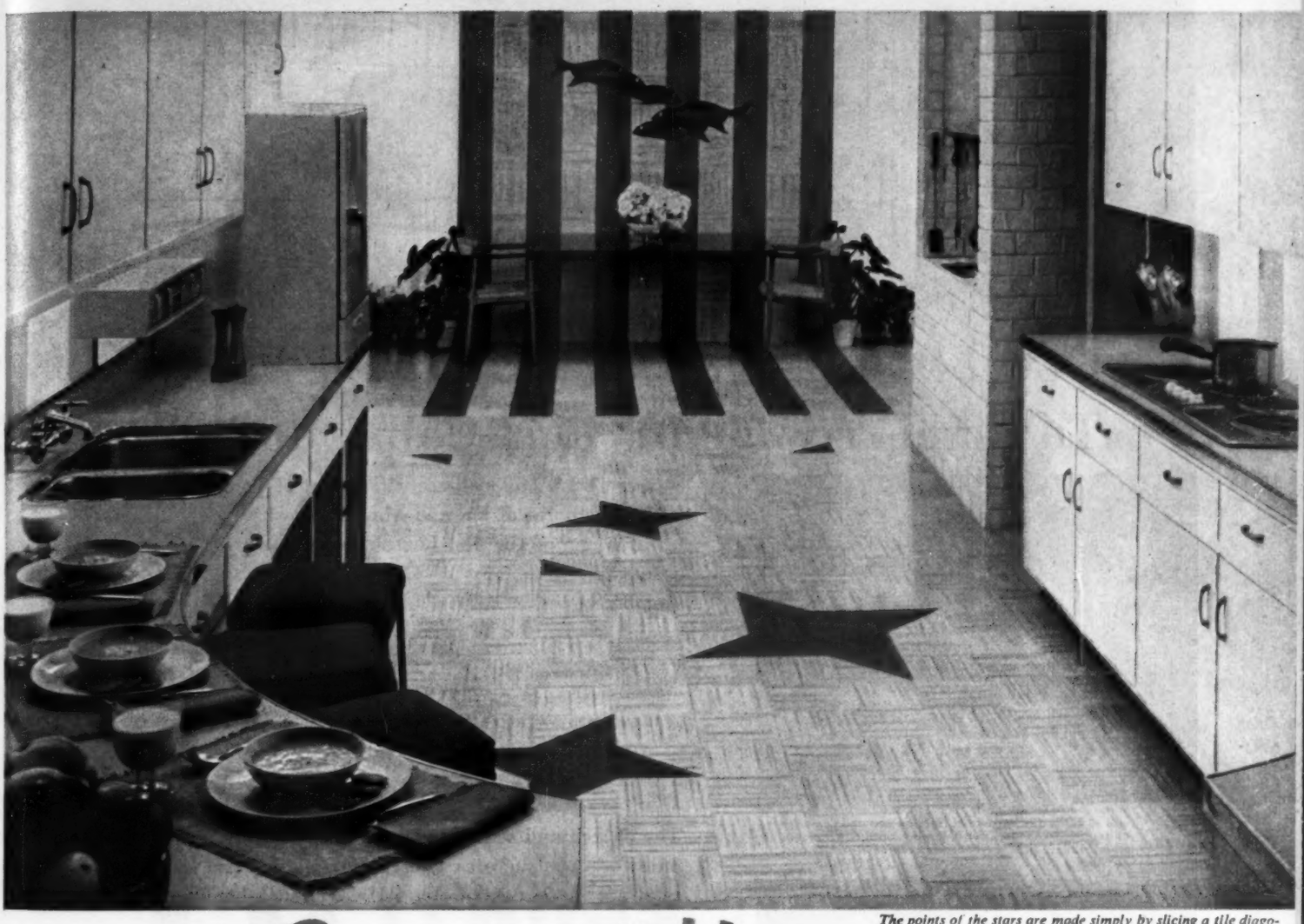
One hundred years ago Viollet-le-Duc wrote an analytical essay on medieval glass thereby spreading the seed which germinated slowly and is now beginning to bear fruit.

One of the important issues raised by Mr. Sowers is that of the unpredictability of the medium. The painter sees his work develop and has full control of it at all times. The path taken by the worker in glass is over ever changing terrain. White clouds, a blue sky, a warm haze, trees and other objects influence to a degree, which cannot be measured, the effect which the finished product has on the viewer. The west windows of the Cathedral of Chartres are blue in the morning since blue permits relatively weak light to pass. When stronger light penetrates the previously latent reds, they take over due to the greater intensity of that color.

We are rapidly taken through a period of great vitality. The author puts his medium aside for a while and is concerned with the "Reunion of the Visual Arts." The architect has not yet discovered the painter and the latter seems happy to paint for his own satisfaction and the adornment of the walls of galleries. As Georgy Kepes says, "Architecture and painting do not meet each other today because both are incomplete." They have therefore gone separate ways. "It may be convenient, momentarily, to look upon contemporary art as the product of three generations which, for our purpose, may be seen essentially and supraindividually as the bearers of three seminal ideas." Picasso, Matisse and Klee are listed as examples of the generation of prime-movers. Doesburg, Ozenfant and Moholy-Nagy are seen as typical of the generation of prototype-makers. And finally the generation of calli-

(*Continued on page 334*)

For a practical kitchen with a million dollar look



The points of the stars are made simply by slicing a tile diagonally. Seafoam White complements Mid-Ocean Blue, and both are carried right up the wall. Countertops: Pembroke Yellow.

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Give prospective house buyers luxury and efficiency plus an illusion of extra space—design your kitchens around low cost Gold Seal VinylTile in soft, lovely Bermuda Hues. A modern miracle, Gold Seal VinylTile gives you an impressive list of selling points. It resists everything from dirt to acids and alkalis... won't pit or scar under grease. It's easy to clean and keep clean... long wearing... resilient, quiet, comfortable under foot. Gold Seal VinylTile in *Bermuda Hues* (harmonized for floors, walls and counter tops) turns an ordinary kitchen into a showpiece. *Approved for on-grade installation even over radiant heat.* Standard gauge, 9" x 9" tiles. For samples and technical information write: Architects' Service Department.

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Cantilevered beams have concealed connection at ridge and are anchored with angles at the walls.

COULD THIS BE THE ANSWER
To Tomorrow's Low Cost Construction?

Built for only $10 per square foot, the award-winning Mirabeau B. Lamar Junior High School in Laredo, Texas, uses RILCO arches because of their low cost and flexibility of design. Architects: Caudill, Rowlett, Scott & Associates, Bryan, Texas; A. A. Leyendecker, Laredo, Texas, Assoc. Architect.

St. Luke's Lutheran Church in Manhattan, Kansas, utilizes the natural beauty of wood, the great economy and modern design of RILCO arches. Architect: Ramey & Himes, Wichita, Kansas. Contractor: Green Construction Co., Manhattan.

Here is Today's appearance with a hint of Tomorrow's economies. The home of Dr. and Mrs. S. Brownstone, Clear Lake, Iowa, is one of the first houses designed with the structural beauty and economy of RILCO Glued Laminated Wood Members in mind. The plank and beam roof design is cantilevered toward the ridge on 3⅞" x 14" RILCO Beams, spaced 7'-6" o.c. The beams are covered with 2" "V" grooved decking, rigid insulation and a 5-ply built up roof with pitch and gravel. This structural economy brought the contract price of this 2,300 square foot, 3-bedroom house down to $12.75 per square foot.

The church and school building illustrated are only two of a multitude of structures whose unique design and great economies are made possible by RILCO Glued Laminated Wood Members.

These buildings are but the beginning Today's structures with the economy and fresh look of Tomorrow. The post-free interior area presents space flexibility to meet new needs and requirements.

What shape Tomorrow's construction will take, we can't predict. But we are confident that the freedom of design, economy of construction and the warm beauty of natural wood offered in RILCO Glued Laminated Wood Members will be a welcome medium for those who build for Tomorrow.

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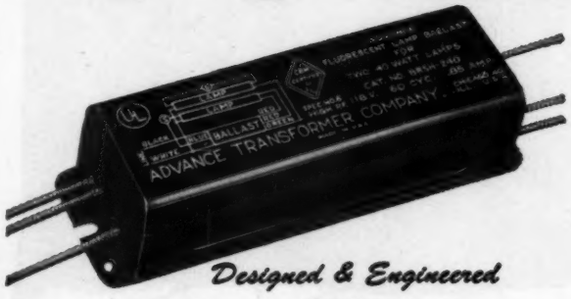

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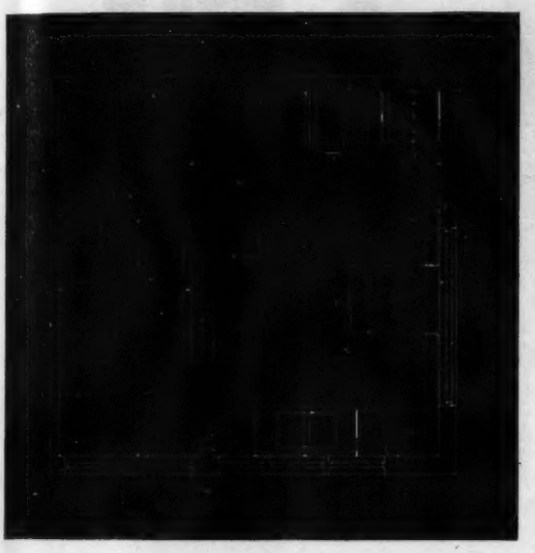
Once a family decides to remodel, they want nothing that even reminds them of "that old hard-to-work-in kitchen." Even their view of Gas may be colored by a collection of kitchen antiques that have long since outlived their usefulness. How delighted they are when they find that the newest, the latest, the most exciting, is available with Gas. You can install separate range units without a 220-volt cable. You can install fully automatic ranges, refrigerators that make ice by themselves, much faster clothes dryers—without changing the circuits. Today's Gas appliances are handsome, modern – cost less to install and use. What else makes as much sense in a remodeled kitchen?

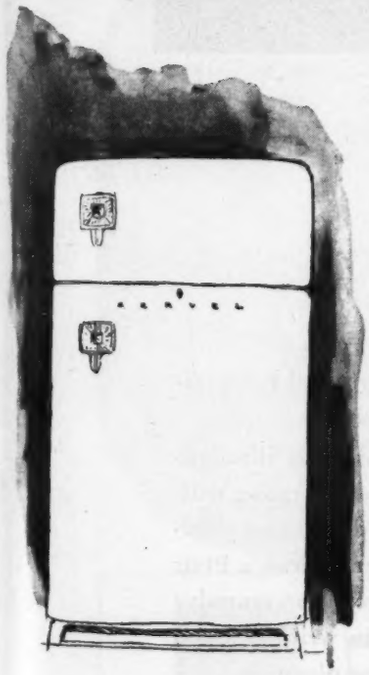
*Reg. A.G.A.

. . . nothing makes as much sense as Gas

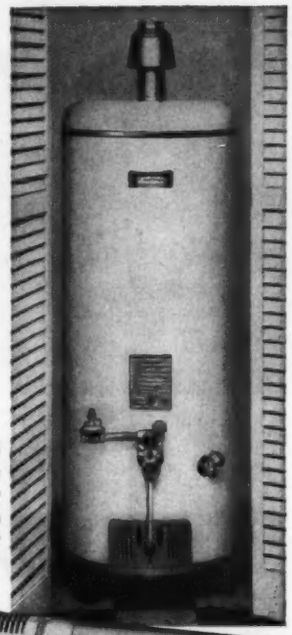


Don't let remodeling stop with the kitchen. Check the laundry set-up. First of all, is the water-heater big enough and fast enough? Only automatic Gas water-heaters have the recovery rate to keep up with the hot water demands of an automatic washer, load after load. Gas is actually 3 times faster than any other all-automatic fuel. Secondly, what's wrong with fitting a washer and a dryer into the remodeled kitchen? There's no longer any reason for the laundry to be next to a drying yard. The automatic Gas dryer is so fast and so economical per load that professional launderettes prefer them 30-1. You make no mistake when you recommend Gas for your remodeled homes.

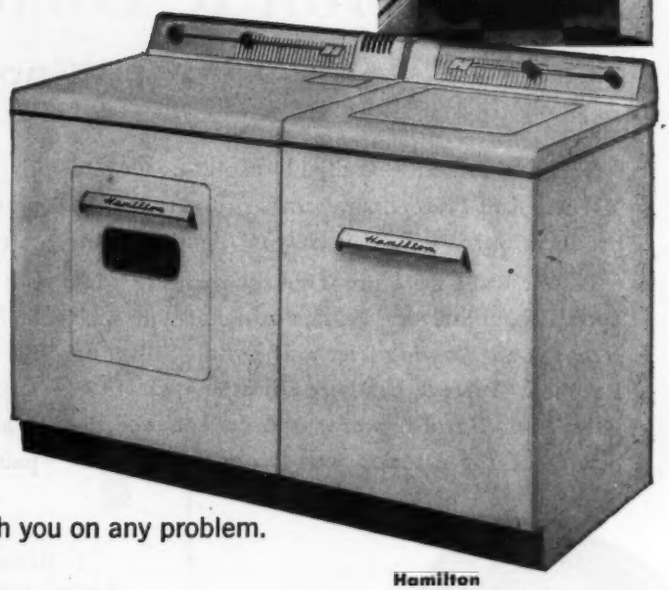
AMERICAN GAS ASSOCIATION



The Gas refrigerator shown (by **Servel**) takes a giant step forward. No other brand has a completely automatic ice-maker, which does away with messy ice trays, keeps a constant supply of ice on hand without ever being touched. More, a silent Gas refrigerator has no moving parts to wear and offers the longest warranty in the business . . . a full 10 years.



Ruud-Monel Two-Temperature Laundry Master automatic Gas water-heater



Hamilton automatic Gas clothes dryer

Your local Gas company will be happy to work with you on any problem.

Only Gas costs so little to install and use

GAS—the modern fuel for automatic cooking . . . refrigeration . . . water-heating . . . house-heating . . . air-conditioning . . . clothes-drying . . . incineration.

Architect: Bertram A. Weber, Chicago

General Contractor: H. B. Kilstoft, Winona

Exterior photo, Hedrich-Blessing, Chicago
Interior photos, Merritt W. Kelley, Winona

It was Pratt & Lambert 100%

For Winona's New "Y"

Winona, Minn., is justifiably proud of its new YMCA. And Pratt & Lambert is proud that P&L products were used exclusively in its decoration.

Plaster walls were prepared for painting with Lyt-all Double Duty Primer and finished with *New* Lyt-all Flowing Flat and Lyt-all Stippling Eggshell. Pratt & Lambert Oil Stains and "38" Pale Trim Varnish were used to enhance the beauty of the interior woodwork, while "61" Gymnasium Floor Finish was specified for maximum protection against hard usage.

This project is typical of hundreds throughout the country where P&L is co-operating with architects in attaining the finest decoration possible in new buildings. Whenever desired, a Pratt & Lambert Architectural Service Representative is available for any assistance in writing sound painting specifications and color planning.

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The problem of adequate waste disposal is becoming more serious every day. A terrific explosion in the sewers of the city of Cleveland, the clogging of a stream by poisoned fish in The Kalamazoo River Valley, and other similar incidents throughout the United States are proof of the need for positive waste control.

The responsibility for providing the proper safeguards is in your hands. No new building should be erected without adequate methods to intercept all types of industrial wastes. No existing building should be permitted to endanger health or safety through uncontrolled dumping of hazardous waste materials.

While the problem is serious, the answer in many cases is simple. Josam manufactures a complete range of interceptors that will remove almost any hazardous waste matter from the drainage before it reaches the sewer. Each of these interceptors is a device that has been tested and proved through thousands of installations . . . devices that have paid for themselves many times over . . . devices that you can depend on.

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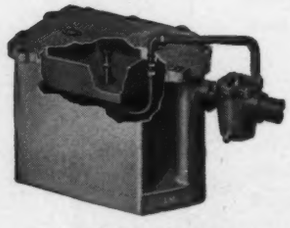
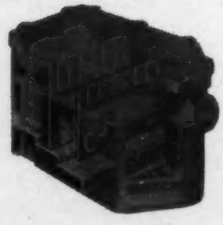


Series JH Grease Interceptor



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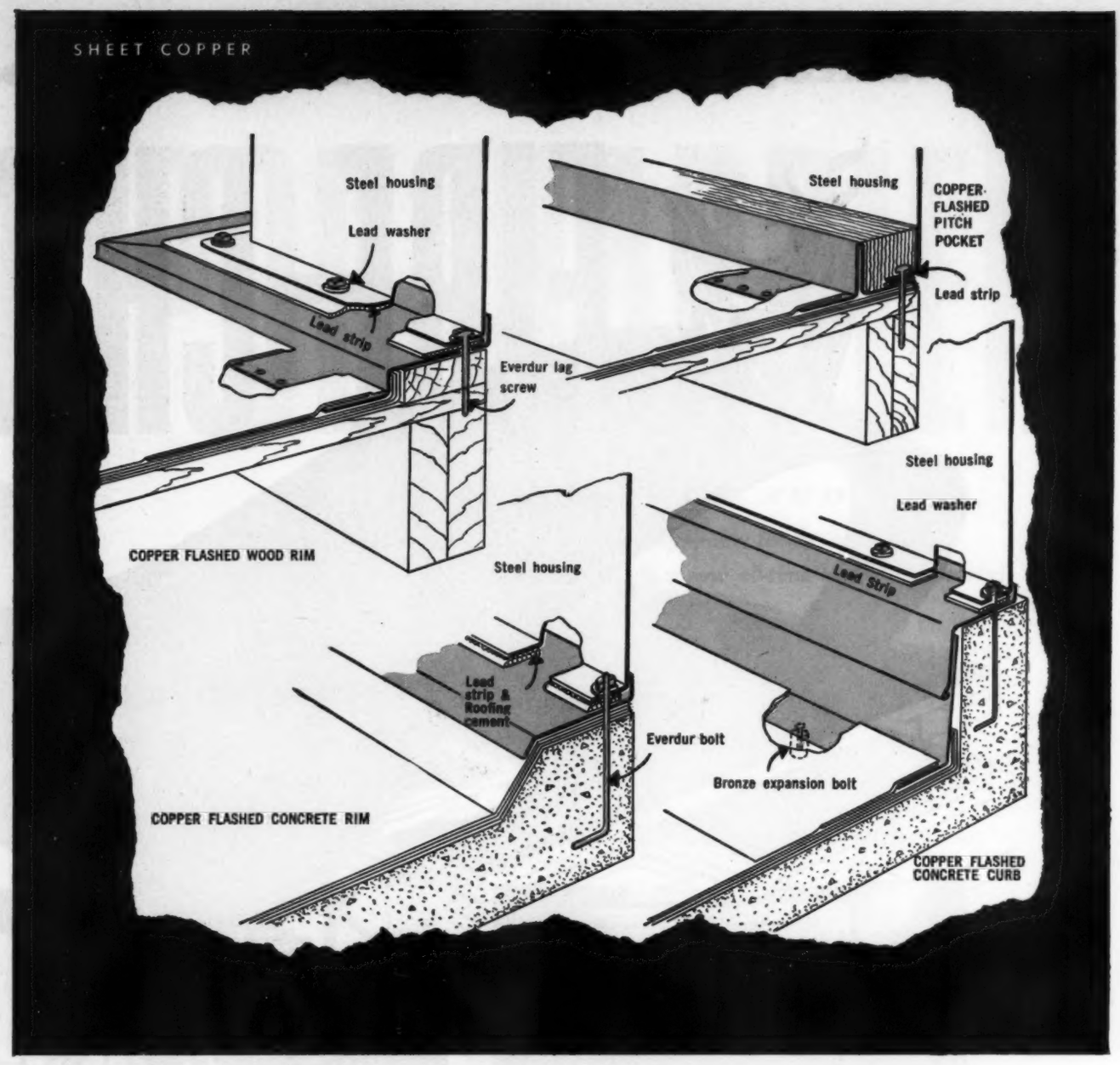

ROOF CURBS: flash them with COPPER for lasting protection

Modern flat-roof buildings usually have one or more construction features calling for roof curbs. These are: penthouse for stairs, skylights, ducts, vent pipes for plumbing, flagpole base, stub columns and many more. Properly flashed curbs keep standing or wind-driven water from leaking into the building at these points.

Shown here are several curb flashing details for both fireproof and wood construction. Flashing for a piece of equipment with a metal housing, such as a roof fan or dust collector, is also shown. Lead strips and washers isolate one active metal from the other. In general, use 16 oz. copper of cornice temper for all curb flashing. 8458

Do you have the FREE Anaconda file of drawings? Each drawing shows a new or improved way to apply sheet copper. Each is printed on a separate 8½ x 11 page, handy for quick-reference filing. This series may be obtained absolutely FREE by writing for Portfolio S to **The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass, Ltd., New Toronto, Ont.**

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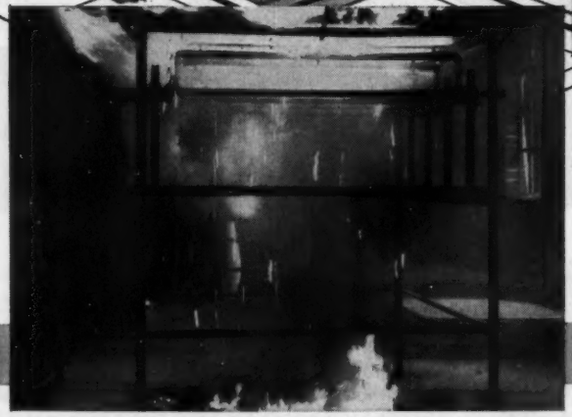
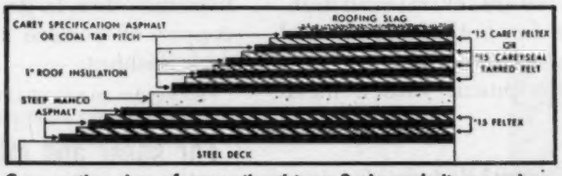
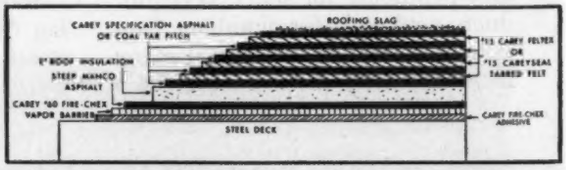


At the Carey Research Laboratories, this fire test of a conventional-vapor seal, with insulation and built-up roofing over steel deck, showed the dripping of asphalt from the vapor seal igniting as 1800° of heat builds up under the roof construction and melted bitumen flows through the joints in the deck.

Fire test of conventional-type built-up roof with new *Fire-Chex 1-ply Vapor Barrier* over the steel deck (see diagram). Here you'll note a *complete* absence of any dripping material and only slight burning of gases. Practically no fuel is contributed to the fire by vapor barrier.



Cross-section view of conventional-type 2-ply asphalt vapor barrier, insulation and roof.


CAREY SPECIFICATION ASPHALT OR COAL TAR PITCH
ROOFING SLAG
1" ROOF INSULATION
STEEP MANCO ASPHALT
#15 CAREY FELTEX OR #15 CAREYSEAL TARRED FELT
CAREY #60 FIRE-CHEX VAPOR BARRIER
CAREY FIRE-CHEX ADHESIVE
STEEL DECK

Cross-section view of Fire-Chex type 1-ply asbestos-plastic vapor barrier, insulation and roof.

achievement in Fire Protection...

VAPOR BARRIER

for built-up roofs

Perfected after years of research and testing—now ready to help you plan buildings with a new all-time high in fire safety!

Carey

Quick Facts About
Fire-Chex Vapor Barrier

MATERIAL REQUIRED FOR ONE SQUARE OF ROOF AREA

1 roll Fire-Chex Vapor Barrier—
weight approximately 60 lbs. per 114 square feet:
size 38 feet long, 36 inches wide
1 gallon Fire-Chex Adhesive

Specify Fire-Chex asbestos-plastic vapor barrier for built-up roofs. Remove all doubt about fire-safety. Fire-Chex vapor barrier does not release excessive combustible gases and melting asphalt.

In Carey Fire-Chex, you have a vapor barrier that does not contribute to fire or cause it to spread. Even when installed over a standard steel deck that becomes red hot in a fire, Fire-Chex remains intact. Does not release melting asphalt and excessive gases.

And here's more good news. Fire-Chex costs only slightly more per square applied than hazardous, conventional-type vapor barriers. You can specify its priceless protection within your client's budget.

Mail the coupon below for complete specification details, or to have a Carey Industrial Sales Engineer call without obligation.

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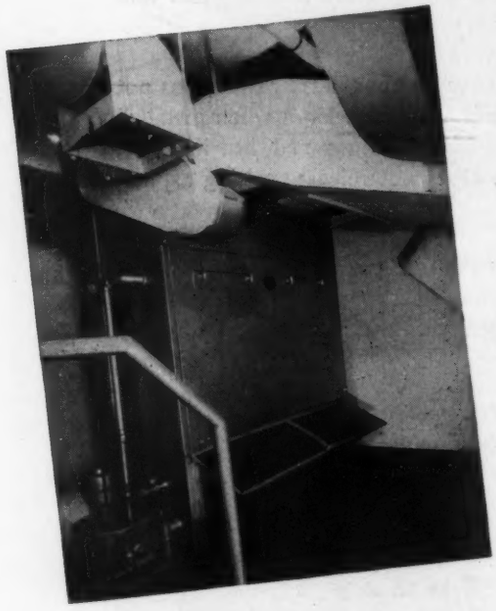
installs heavy-duty *Acme* evaporative condenser



Of outstanding architectural beauty and exquisite interior is the new Saint Sophia Greek Cathedral in Los Angeles, recently displayed in color by Life Magazine (November 3, 1952 issue).

The entire edifice with its elaborate bas-relief arches and smooth contrasting walls supporting the central dome and two flanking domes is constructed of concrete and steel, truly "built for the ages" as was the intention of Charles P. Skouras, President of National Theaters, Inc. when he sponsored this cathedral for the Greek Orthodox community.

Completely air conditioned, the Acme Evaporative Condenser was selected as a unit that would stand up under long usage. Certain built-in features of excellence influenced Mr. J. W. Bantau, Chief Engineer of National Theatres, Inc. in his selection of a heavy duty Acme Evaporative Condenser.

- ✓ Entire unit hot dip galvanized after fabrication.
- ✓ Heavy #11 gauge end panels and bottom panels. #14 gauge side panels.
- ✓ External self aligning ball bearings, vented.
- ✓ Large cadmium plated shaft (2½" O.D. in this unit.)
- ✓ All prime surface copper coil.
- ✓ Vertical flange mounted pump with stainless steel shaft bronze bushed.

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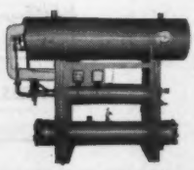
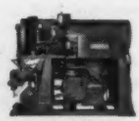


Packaged Liquid Chillers to 225 tons



Flow-Temp Heat Pumps

Flow-Cold Liquid Chillers

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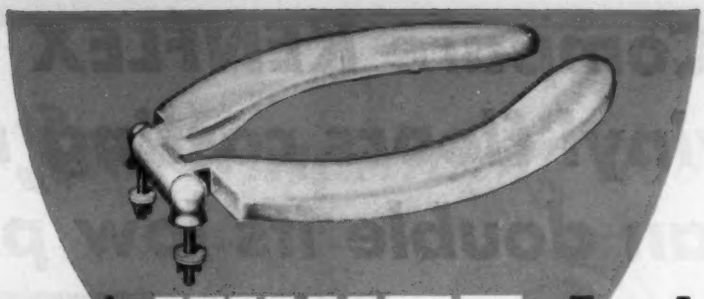
Continuously serving the air conditioning and refrigeration industry since 1919

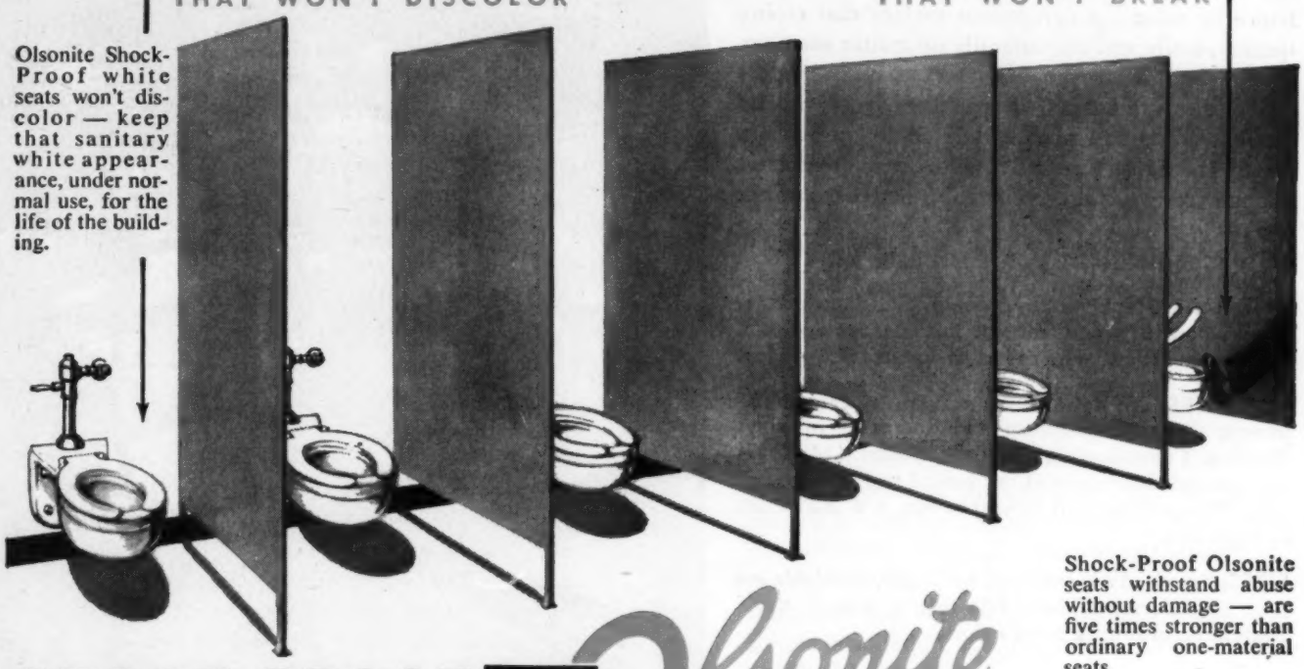


Now! WHITE Industrial SEATS

THAT WON'T DISCOLOR

THAT WON'T BREAK

Olsonite Shock-Proof white seats won't discolor — keep that sanitary white appearance, under normal use, for the life of the building.



Shock-Proof Olsonite seats withstand abuse without damage — are five times stronger than ordinary one-material seats.

SHOCK-PROOF SOLID Olsonite SEATS

A truly white seat looks more sanitary, is more attractive, brightens and lightens the room. And now—you can specify a white seat that *stays* white for a lifetime of normal use.

The new Olsonite White Shock-Proof Seats are ideal for all industrial and public toilet installations. Independent research laboratory tests have proven no visible discoloration, even after years of service. And these tests have also proven an ability to withstand shock five times greater than ordinary solid seats. Even deliberate abuse in public toilets and industrial installations won't crack, chip, or break the new Olsonite Shock-Proof Seats —and they won't absorb water.

Add to these new advantages the Olsonite features of concealed hinge, no exposed metal to rust or corrode; one material, sanitary white all-the-way-through; and one piece construction, no applied finish to crack or peel. Then—specify the seat that *stays white*—that can "take it" without damage even in public toilets—Solid Olsonite SHOCK-PROOF Seats.

All Olsonite Industrial, Commercial, and Public Toilet Seats are now of Shock-Proof Construction. They are available in both black and white.

Olsonite's complete catalog is available on request. Please write on your letterhead to:

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Compare KENFLEX to vinyl floors costing more than double its low price

The cost of KENFLEX vinyl-asbestos tile is surprisingly low...yet it gives every advantage needed for every commercial specification! It has all the durability which the miracle of vinyl makes possible... easily outwearing other types of resilient floors of the same thickness. It has all of vinyl's clear brilliance of color...a non-porous surface that cleans quickly, easily and economically no matter what has been spilled on it. And, as KENFLEX is cut by precision dies maintained at peak efficiency, it has straight edges and precise right-angle corners for faster, easier installation...minimum labor expense for new construction, remodeling or redecorating.

Specifications and Technical Data

INSTALLATION: Over any smooth, firm interior surface: wood, plywood, radiant heated concrete slab, concrete in contact with the earth—on or below grade.

THICKNESSES: Laboratory and in-use tests have proven the wear-resistance and durability of vinyl flooring. Consequently, Standard Gauge (1/16") is recommended for normal residential and commercial uses. Where traffic will be very severe, 1/8" KENFLEX is suggested.

SIZES: Standard tile size is 9" x 9"...also available are 9" x 9" decorative ThemeTile inserts, and 1" x 24" Feature Strip in four solid colors.

Approximate Installed Prices (per sq. ft.)

	Standard (1/16") Gauge	1/8" Gauge
KENFLEX all colors	40¢	65¢

KenFlex is available in 15 co-ordinated colors, all of which are marbleized. Costs shown above are based on a minimum area of 1,000 sq. ft. over cement underfloor.

KENFLEX VINYL TILE is ideal wherever food is prepared and served. Spilled greases, oils and foods can't harm it or penetrate its smooth, non-porous surface... can't be ground-in underfoot. A KenFlex Floor cleans quickly and thoroughly...seldom needs scrubbing...never needs waxing except to make the brilliant colors shine a bit more.

Samples and Literature Available on request from any of the Kentile, Inc. offices listed below. Or, contact the Kentile Flooring Contractor. He's listed under FLOORS in the Classified Phone Directory.

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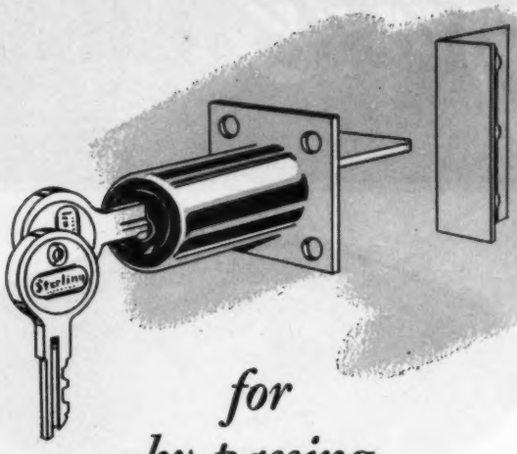
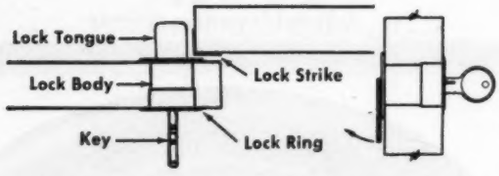
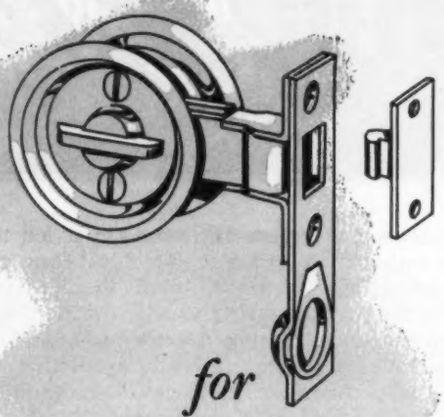
New! Sterling® *sliding door locks*



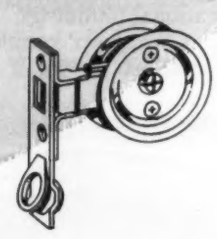
for by-passing doors



Now sliding closet doors can be locked and contents kept safe from pilferage. This lock is designed on a revolutionary new principle. One half turn of key raises tongue to locked position or returns it to unlocked position. Cylinder is geared to tongue and action is positive. Simple to install—bore one hole. Fits ¾" to 1¾" doors.



for pocket doors



A new tubular type sliding door lock for bathroom or bedroom passage doors. Privacy is assured by turning locking button on the inside of room. Emergency button on outside permits unlocking with screw driver or coin. Edge pull has easy to use drop ring. Neat, simple installation. It has standard 2⅜" backset. Fits 1⅜" or 1¾" doors.

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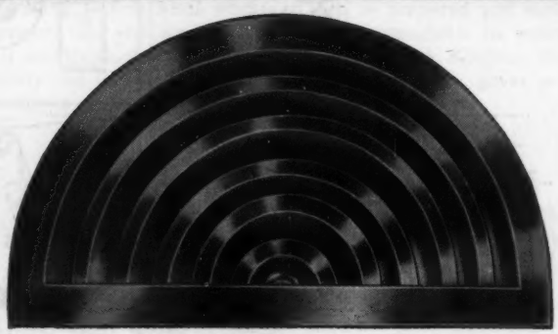
TYPE PA
Adjustable pattern diffuser

TYPE PR
Flush type, fixed pattern supply and return diffuser

TYPE PLF
Flush type, fixed pattern diffuser combined with light fixture

TYPE S
Flush type, fixed pattern diffuser



TYPE H
Flush type, fixed pattern half-round diffuser

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To meet specific air delivery requirements, volume control dampers, distributing grids, blanking baffles, and other accessory equipment is available for all Aerofuse Diffusers.

A wide selection of diffuser types and sizes, styled and engineered to meet the most rigid requirements of appearance and performance at the point of air delivery

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Stepped-down type, fixed pattern diffuser

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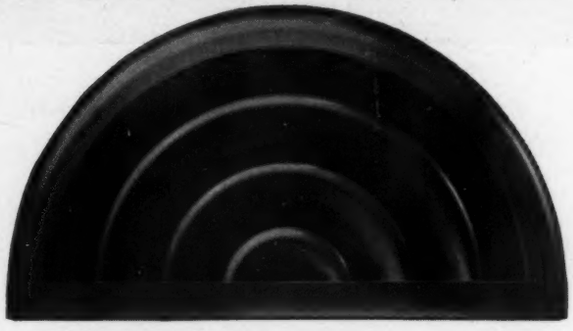
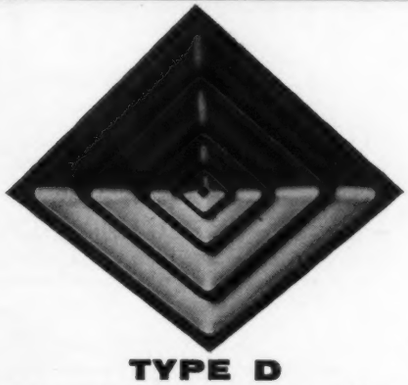


TYPE PH
Flush type, fixed pattern, half round diffuser



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Flush type, fixed pattern square diffuser

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Philadelphia General Hospital. This modern hospital, recently completed in Philadelphia, Pennsylvania, was designed by Gilboy and O'Malley, Architects and Engineers, Alfred Clauss, R.A.—Partner, Philadelphia, Pa.

HIGH hospital standards of asepsis and sanitation may begin in the operating, delivery and other specialized treatment rooms, but they don't end there. Hospital administrators insist upon the greatest possible degree of cleanliness throughout the hospital.

And that's one important reason why more and more architects specify Carrara Structural Glass for hospital washrooms. For Carrara Glass is easy to keep clean, shining and sanitary.

Carrara is all glass, with a smooth, homogeneous texture that is highly impervious to the attacks of acids, water, steam, soap, chemicals and cleaning compounds.

Its surface is mechanically ground and polished to an unusually smooth, even surface. And because Carrara is manufactured in large sections, there are fewer joint crevices to catch dust and dirt. Carrara wipes clean readily with a damp cloth, greatly simplifying the maintenance problem.

Additional information on Carrara is available from Pittsburgh Plate Glass Company, Dept. 4316, 632 Fort Duquesne Blvd., Pittsburgh 22, Pa.

Carrara ... the quality structural glass

PPG

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS · FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

Vinylized AZPHLEX

a new answer to an old flooring problem

Vinylized Azphlex is the new and better flooring for multi-purpose school areas — such as this combination cafeteria-auditorium. Here's a tougher floor that withstands heavy wear and grease abuse, yet is easier to clean and keep clean.

Vinylizing gives Azphlex its superior qualities. Its tightly textured smooth surface is easy to mop clean — its closely interlaced structure adds years of wear in the face of constant use and abuse.

Vinylizing also gives Azphlex its cleaner, brighter colors — colors that add sparkle and beauty to school interiors. Its better light reflectance is easy on the eyes of both pupil and teacher, too. And, Azphlex costs no more than ordinary greaseproof asphalt tile.

Why not get all the facts on Vinylized Azphlex before you specify school floors. Its cost per square foot per year is unusually low. Color chart, product data and name of nearest Azrock dealer will be sent on request.

AZPHLEX

VINYLIZED TILE

AZROCK PRODUCTS DIVISION • UVALDE ROCK ASPHALT CO.
FROST BANK BUILDING • SAN ANTONIO, TEXAS
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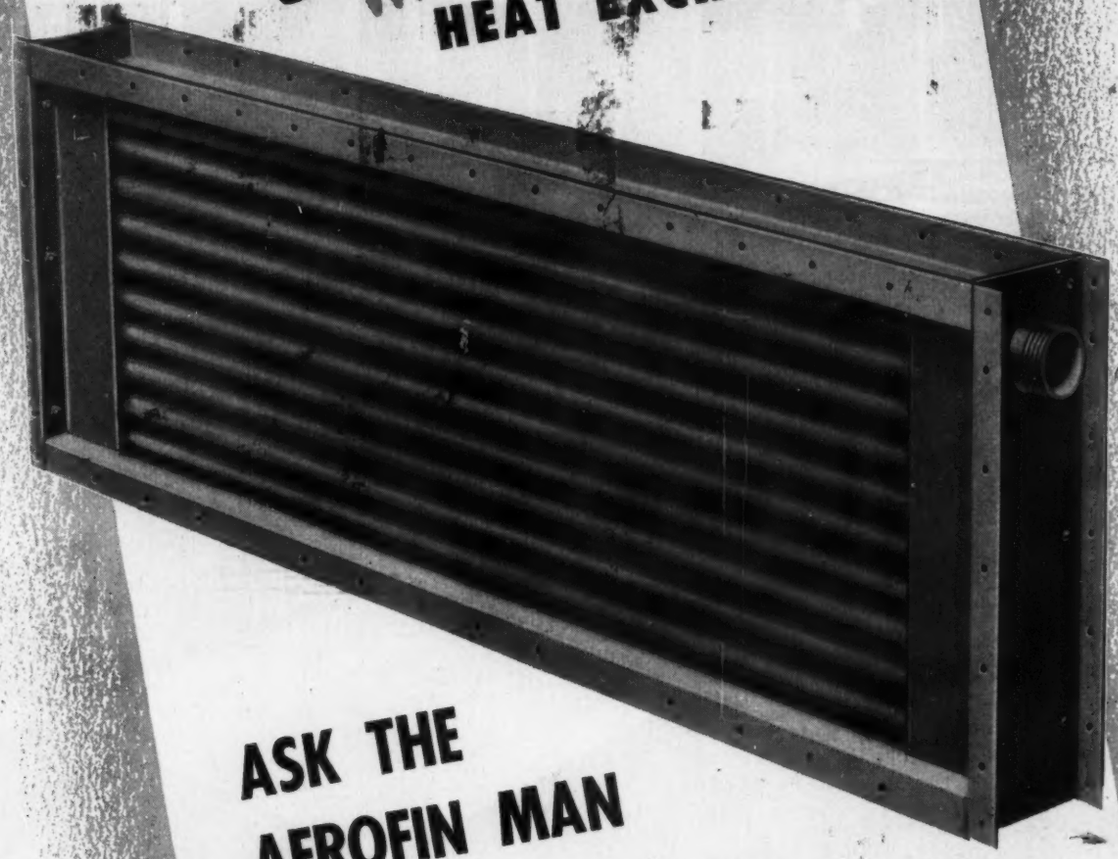
*FIRST LINE *Extended-Surface* HEAT EXCHANGERS



ASK THE AEROFIN MAN

Specify Aerofin and you specify high efficiency, long service life and low maintenance and service costs.

Take advantage of Aerofin's unequalled experience, production facilities, and materials-testing and design research—of Aerofin's complete engineering service at the plant and in the field.

Ask the Aerofin man.

* Aerofin makes extended heat surface exclusively — not as a by-product, not as a side-line. Sold only by manufacturers of fan-system apparatus. List on request.

AEROFIN CORPORATION

101 Greenway Ave., Syracuse 1, N. Y.

Specify

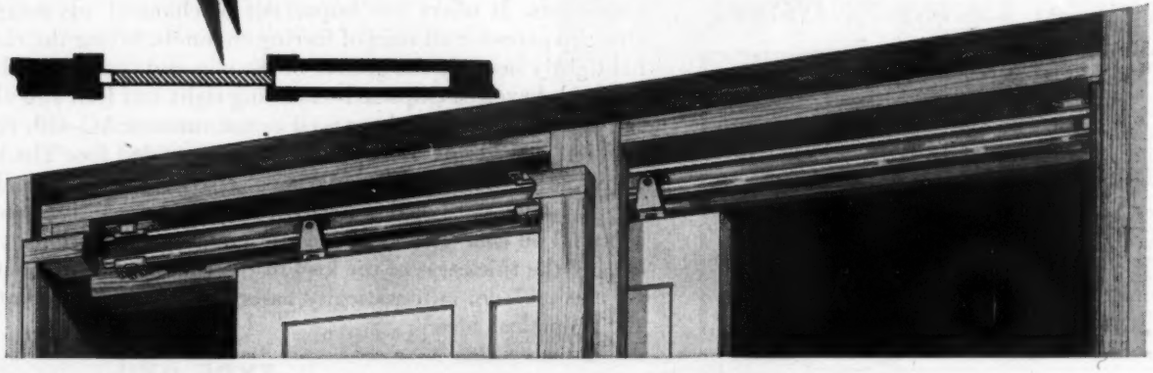
TROUBLE-FREE SLIDING DOOR OPERATION

with

Hardware by Stanley

The name STANLEY has always been the hallmark of the finest in builders' hardware. STANLEY is to hardware what STERLING is to silver. This standard of quality has been maintained in the hardware Stanley has developed for interior residential sliding doors. Stanley hardware means quiet, trouble-free operation for the life of the door. Here's why and how:

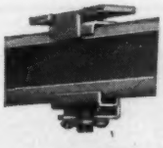
Take set 2681, shown here, as a typical example. Consider it, in this instance, as used for one sliding door, up to 1⅜" thick, to be installed in a pocket.



Hangers — Easy to install, with unique take-apart feature.

For ¾" doors, set 2680 has apron type hangers. For heavier doors up to 1¾" thick, set 2682 has double wheel hangers.

Wheels are quiet operating, long wearing texolite with graphite filler for permanent lubrication.



Adjustable Track Brackets — Two steel brackets hold track securely and keep door in alignment. If door is out of plumb when hung, it is easy to adjust with a screwdriver.

End Bracket — For pocket installation only — holds track securely and permits easy adjustment of other track brackets at any time without entering pocket.

Track — Bonderized and aluminum coated, in lengths for any door opening. The V-shaped design reduces wheel friction to a minimum.

Floor Guide — Concealed by door stops.

Wrench — Adjusting wrench packed with each set.

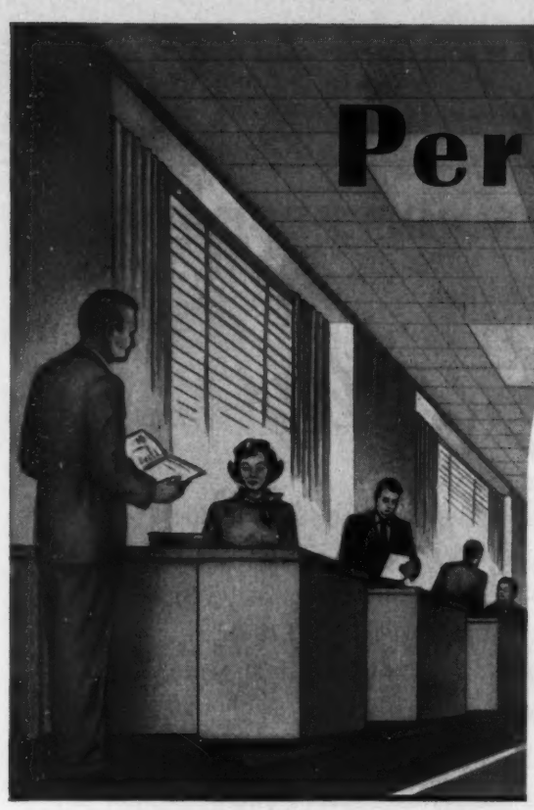
These are the component parts of a typical set of Stanley Sliding Door Hardware. There are sets for every type of installation including the "Budgeteer" low headroom sets. Also available is a full line of trim items — stops, pulls, guides, latches, etc.

For complete details, send for Folder G1-54 (A.I.A. File No. 27-A). Write The Stanley Works, New Britain, Connecticut.

STANLEY® Hardware

A Division of The Stanley Works

HARDWARE • TOOLS • ELECTRIC TOOLS • STEEL • STEEL STRAPPING

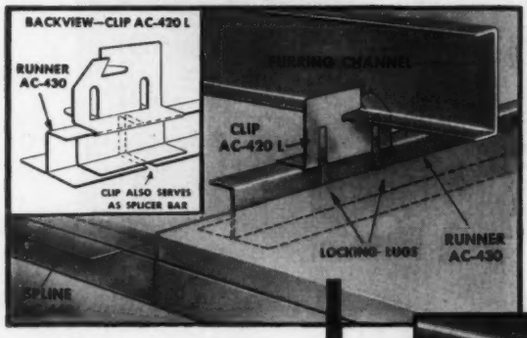


Permanently Beautiful...

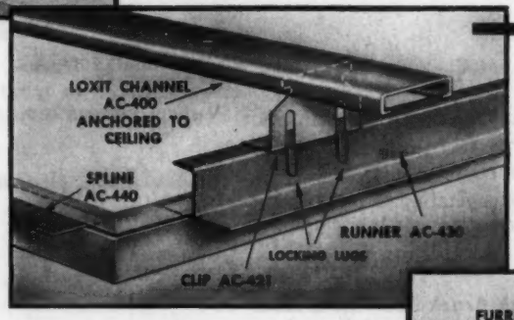
THANKS TO THE LOXIT VICTORY ACOUSTICAL SYSTEM

The new improved Loxit VICTORY Acoustical Suspension System is really three systems in one—"X" Regular—"Y" Surface Applied—and "Z" Combination. Used individually or in combination, this system meets all acoustical tile-setting conditions. It offers five important mechanical advantages. One clip cares for all sizes of furring channels, fitting the channel tightly because the groove of the clip and the locking lugs are both beveled. Clips AC-420 being right and left, and clips AC-421 being reversible as well as the runners AC-430, right and left conditions are automatically provided for. The clip serves as a splicer bar, eliminating a separate splicing bar. The supporting flanges of the runner AC-430 are single thicknesses of metal on *both* sides (the same thickness as the splines), reducing the thickness of the kerf in the tiles to that of a single thin saw blade, automatically assuring proper alignment of the acoustical tiles.

THE "X Y Z" OF DEPENDABLE ACOUSTICAL SUSPENSION SYSTEMS

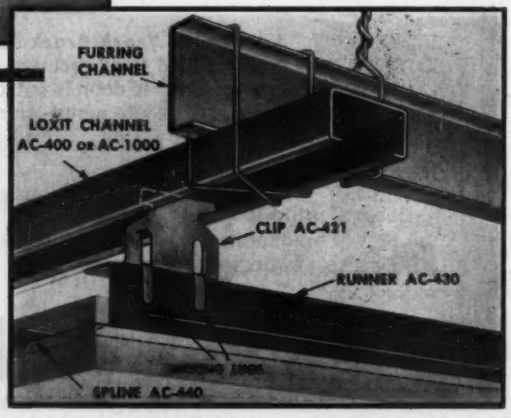


TYPE "X" This Loxit Victory Regular Acoustical Suspension System was engineered to care for conditions where furring channels are being used as the supporting structural members for the suspension system. It is simple and easy to use.



TYPE "Y" This Loxit Victory Surface Applied System meets those conditions where no suspension is involved, with the tiles being applied directly to the ceiling. Using Loxit channels AC-400 with Loxit clips AC-421, this type of installation becomes both simple and practical.

TYPE "Z" This Loxit Victory Acoustical Suspension System combines Types "X" and "Y" and provides facilities for leveling the suspension members of the system by shimming between the Loxit channels AC-400 or AC-1000 and the furring channels, bar joists or other structural sections.



Consult your architect. His dollar-wise and design-wise training and experience are your best assurance of a wise investment. For informative literature, catalogs and samples, write to us.

LOXIT SYSTEMS, INC.

1217 W. WASHINGTON BLVD. • CHICAGO 7, ILLINOIS

NAHB employs CANVAS

to cut cooling costs in Air Conditioned Village

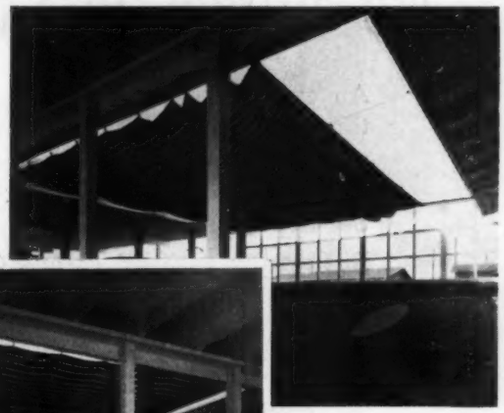
Once sun heat gets into the air conditioned home, it is too late to do much about it. From then on, the cooling equipment has to work harder to handle the extra load. It makes sense, therefore, to intercept the sun's rays *before* they enter the house. And the easiest, cheapest way is with exterior shading devices at windows and open areas.

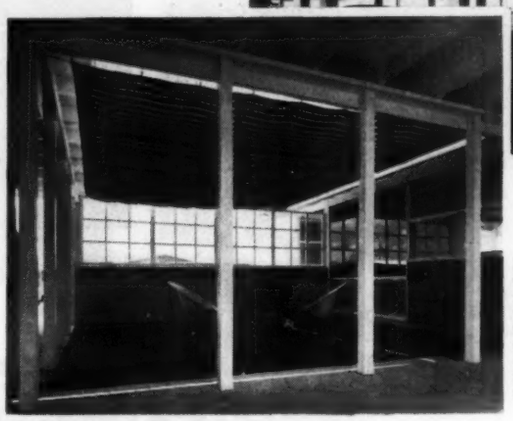
With these facts in mind, the National Association of Home Builders is using canvas sunshades as an important means of reducing heat gain in a number of its test homes in the Air Conditioned Research Village project in Austin, Texas. On south, east, and west exposures, canvas awnings are seen in a variety of different forms and in a dramatic array of colors.

By screening from 65 to 75% of the sun's rays, this heavy fabric is expected to cut electrical cooling bills substantially. Not only that, but the sun problem is solved both flexibly and economically. On east and west, canvas awnings are better than overhangs, because they can roll down low when needed and give complete protection for a fraction of the cost.

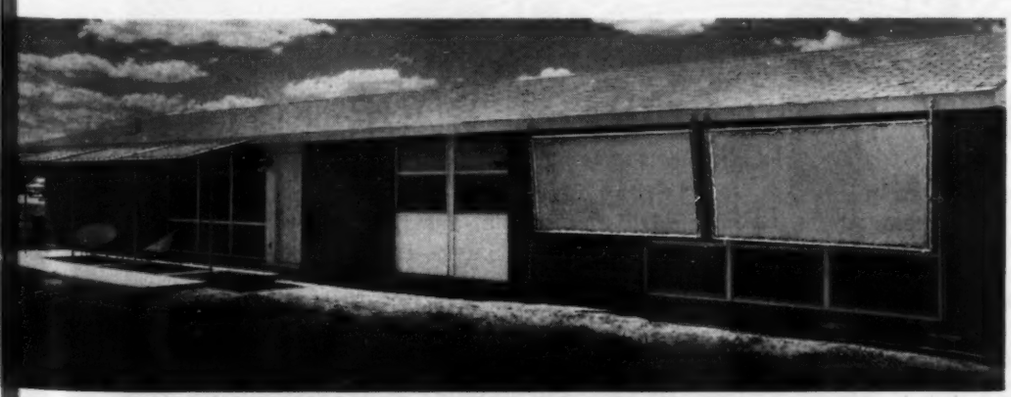
Remember, too, the same factors that aid in cooling a house *with* air conditioning will also make it a cooler, more livable house *without* air conditioning. So get acquainted with your local canvas goods manufacturer, listed in the yellow pages of your phone book. He'll gladly work with you in designing distinctive canvas installations to complement the particular styles of your houses.

Here a vertical roller awning is used in conjunction with a west overhang that cannot provide complete protection from the low late afternoon sun. Not shown are matching gray and green striped standard awnings shielding east windows, which are an equally critical source of heat.





Patio living has an added festiv note with this movable canva roof, and the large glass area o west wall of living room ha flexible sun protection. This can vas installation operates by pul leys on overhead steel cable furnishing shade by day, or b night, a cool open area.



Canvas panels laced on metal frames (left) play a dual role in shading bedroom windows and living room-terrace window wall. Hinged to the outside of a wide south overhang, they can extend the protected area by several feet, providing shade for outdoor living, or they can hang vertically from the edge of the overhang.

(Below) South windows and a southwest window wall leading onto terrace are completely shaded from the summer sun with this wide curving terrace awning of burnt orange canvas. A pleasant outdoor living area is also afforded by this installation, which is demountable to allow occupants to take advantage of sunshine and warmth during winter months.

See our catalog 18f/Ca in Sweet's Architectural File or write for a free copy. It contains original and practical ideas, plus helpful instructions for specifying canvas.

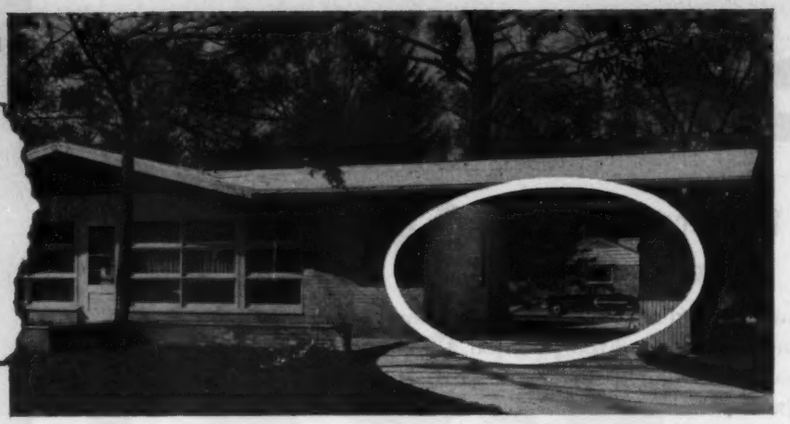
anvas Awning Institute and National Cotton Council

Post Office Box 1851 Memphis, Tennessee

MEMO

TO ARCHITECTS & BUILDERS:

A carport can give even the best planned house a half-finished look. These pictures show why . . .



No house is COMPLETE without a *Garage!*

An extended roof line with a see-through carport won't create that rambling, spacious effect so popular in ranch-type homes today . . . as the upper photo proves.

But a fully enclosed garage (right) adds length, beauty, **completeness** to any home. Moreover, it adds an extra room for play, workshop, storage . . . safe all-year car protection . . . greater sales appeal for you — greater resale value for the owner!

. . . and No *Garage* is complete without:

THE "OVERHEAD DOOR" TRADE MARK

FIRST and FINEST in the GARAGE DOOR FIELD!

Whether you're a project or custom builder, The "OVERHEAD DOOR" can mean more sales, more satisfied owners for your houses!

The "OVERHEAD DOOR" is America's great name in quality doors. It gives you such plus features as: Miracle Wedge* for weather-tight closure, easiest opening . . . tapered drums for perfect balance in any position . . . Salt Spray Steel* rust-resistant hardware . . . standard and special-design doors in all sizes . . . Nation-wide Sales—Installation—Service

New! ULTRONIC Door Operator . . . unlocks and opens garage door, turns on lights, closes, or stops the door, from pushbutton in car. Surprisingly low in cost, and a sensational new selling feature. Investigate!

LOOK FOR THE TRADEMARK in the yellow pages under "Doors" and call your local dealer now — or write for complete details.

OVERHEAD DOOR CORPORATION

Dept. AR5, Hartford City, Indiana

MANUFACTURING DIVISIONS

Hillside, N. J. • Cortland, N.Y. • Oklahoma City, Okla.
Nashua, N. H. • Lewistown, Pa. • Dallas, Tex. • Portland, Ore.

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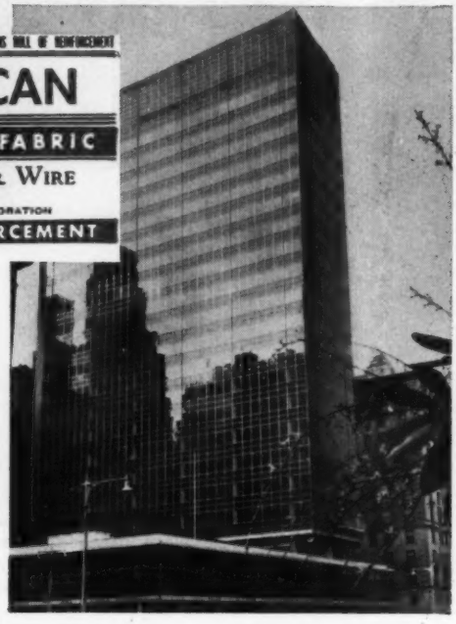
* TRADE MARK

THE COMPLETE LINE OF UPWARD-ACTING DOORS . . . **RESIDENTIAL • COMMERCIAL • INDUSTRIAL**

For high quality concrete work . . .

high quality American Welded Wire Fabric

PREFABRICATED ROLLS of American Welded Wire Fabric wound on large mandrels can be unrolled continuously from beam to beam, making installation easy and assuring continuous reinforcing.



LEVER HOUSE contains American Welded Wire Fabric Reinforcement. American Fabric often exceeds the new ASTM Specification A185-53T; it puts an extra margin of safety in your designs.

PITTSBURGH'S RENAISSANCE is symbolized by these new Gateway Buildings which are built with short-span floors reinforced with American Welded Wire Fabric.

PRE-CAST CONCRETE slabs and planks used in this building have exceptionally good resistance to cracking when they are reinforced with American Welded Wire Fabric.

REINFORCEMENT is the backbone of your concrete structures, so it pays to specify the best wire fabric for walls, floors, roofs, and concrete ground slabs. And the very best is American Welded Wire Fabric.

American Fabric not only meets the new ASTM Specification A185-53T, it often *exceeds* it. We make a concerted effort all along the line, in making the steel, in drawing the wire, and in fabricating and testing the fabric, to see that American Welded Wire Fabric is the best it's possible to make.

This pays off for you, because you can use it with confidence in your designs, knowing that it will give your concrete more than the calculated strength and resistance to cracking.

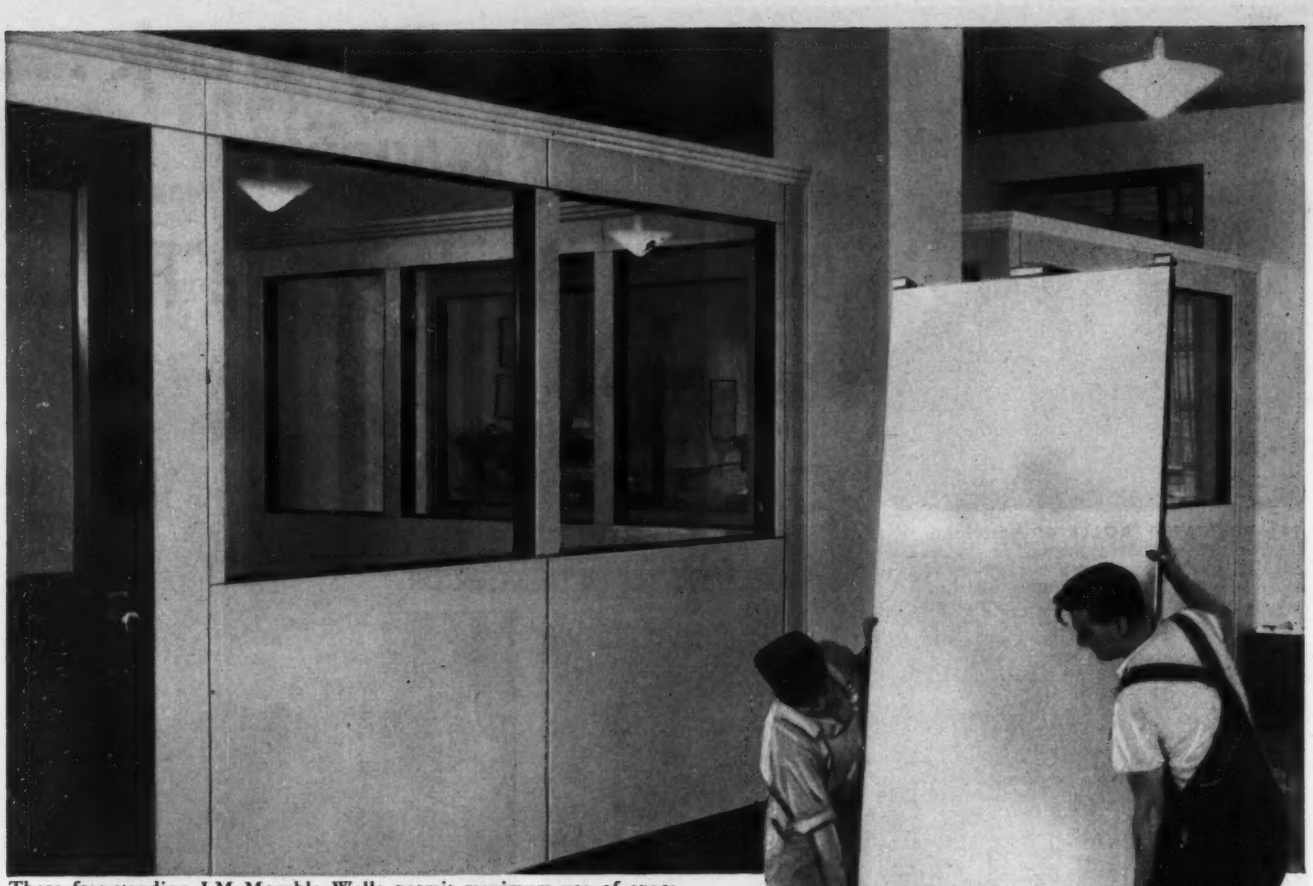
AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL CORPORATION, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS • UNITED STATES STEEL EXPORT COMPANY, NEW YORK

EVERY TYPE OF REINFORCED CONCRETE CONSTRUCTION NEEDS

USS AMERICAN WELDED WIRE FABRIC

USS

UNITED STATES STEEL



These free-standing J-M Movable Walls permit maximum use of space. They create efficient offices that can quickly and easily be rearranged to suit the needs of changing space requirements.

For the offices you need in the space you have

Johns-Manville Asbestos Movable Walls provide offices when and where you want them

YOU can rearrange your present space or have new space partitioned off quickly and economically with Johns-Manville Asbestos Movable Walls. Made of asbestos, they resist fire, rot and wear.

These flush-type, attractive panels have a clean, smooth surface that's hard to mar, easy to maintain . . . and extra strong to withstand shock and abuse. Also, they are light in weight, easy to install and relocate. The "dry wall" method of erection assures little or no interruption to regular routine.

Johns-Manville Asbestos Movable Walls may be used as ceiling-high or free-standing partitions. The complete wall, including doors, glazing and hardware, is installed by Johns-Manville's own construction men under the strict supervision of trained J-M engineers . . . *responsibility is undivided.*

For details about Johns-Manville Asbestos Movable Walls, consult your Sweet's Architectural File, or write Johns-Manville, Box 158, Dept. AR, New York 16, New York. In Canada, write 199 Bay Street, Toronto 1, Ontario.

JOHNS-MANVILLE PRODUCTS

Johns-Manville ASBESTOS *Movable Walls*

INSTALLED NATIONALLY BY JOHNS-MANVILLE

POINT STRENGTH

SMOOTHNESS

BLACKNESS

WEAR

You get balanced performance

from every

TURQUOISE PENCIL

thanks to

100% "Electronic Graphite"

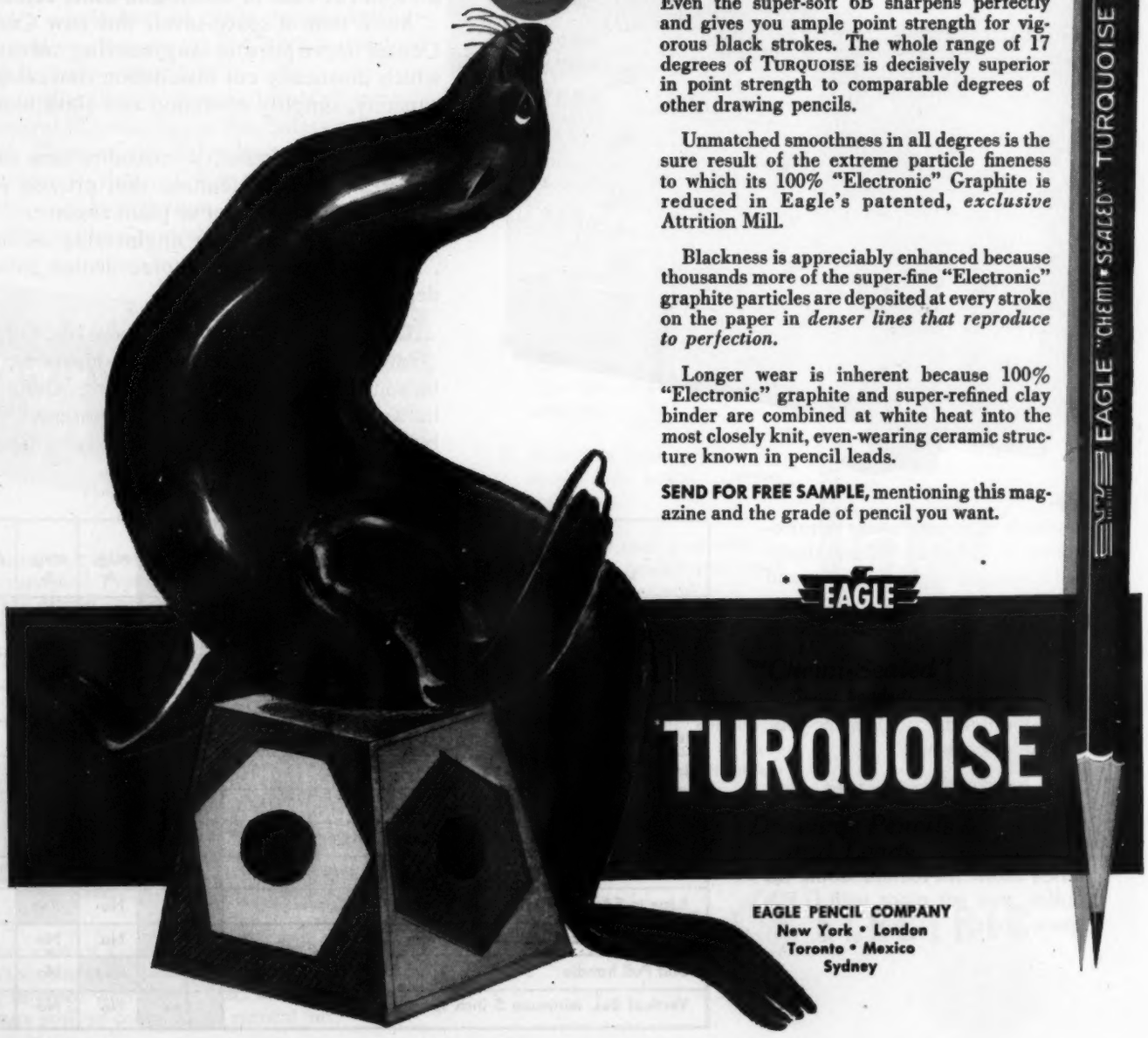
Even the super-soft 6B sharpens perfectly and gives you ample point strength for vigorous black strokes. The whole range of 17 degrees of TURQUOISE is decisively superior in point strength to comparable degrees of other drawing pencils.

Unmatched smoothness in all degrees is the sure result of the extreme particle fineness to which its 100% "Electronic" Graphite is reduced in Eagle's patented, *exclusive* Attrition Mill.

Blackness is appreciably enhanced because thousands more of the super-fine "Electronic" graphite particles are deposited at every stroke on the paper in *denser lines that reproduce to perfection.*

Longer wear is inherent because 100% "Electronic" graphite and super-refined clay binder are combined at white heat into the most closely knit, even-wearing ceramic structure known in pencil leads.

SEND FOR FREE SAMPLE, mentioning this magazine and the grade of pencil you want.



EAGLE PENCIL COMPANY
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NEW G-E MOTOR

Saves up to

HERE'S a new product that spells savings all along the line . . . from initial purchase to on-the-job operation. G.E.'s all-new Motor Control Center (Type DA7093) puts your motor control capacity in approximately *half* the space formerly required. It takes nine NEMA size one or six NEMA size two control units in one standard 90-inch trough. This means fewer sections to buy, fewer sections to find space for and fewer sections to maintain — a clean-cut case of dollar-and-cents economy.

More than a space-saver, this new Control Center incorporates engineering advances which drastically cut installation time, step up capacity, simplify operation and slash maintenance costs.

Equally important, it embodies new safety features . . . *extra* features that provide *extra* safety to the contractor or plant engineer.

Look at these major engineering advances . . . which bring you unprecedented savings, dependability and safety:

Center Busing doubles vertical bus capacity (from 300 to 600 amperes) . . . leaves top and bottom pull boxes free for wiring within and between sections . . . allows continuous main bus of 600 or 1200 ampere capacity up through five sections.

Expands with your plant requirements . . . Select only those standardized sections, control units and accessories which meet your present needs. Then, as your power consumption grows, you can easily expand to keep pace with your changing control requirements. Only minimum or "on-the-job" wiring is necessary.

Compare the DA7093 with other leading competitive Control Centers. Feature for feature, dollar for dollar, you get more with G.E.'s space-saver.

MOTOR CONTROL CENTER FEATURES	Electri DA7093	Mfg. A	Mfg. B	Mfg. C
Can accommodate 9 size 1 starter units with disconnect and transformer	Yes	No	No	No
Center Busing	Yes	No	No	No
Split Type "B" Terminal Blocks	Yes	No	No	No
Individual Stab Blocks	Yes	No	No	No
Individual bus insulators	Yes	No	No	No
Positive unit grounding	Yes	No	[illegible]	No
Straight-in wiring to main lugs accessible from front	Yes	No	No	No
No across hinge wiring	Yes	[illegible]	No	No
Edge to Edge Configuration Main bus	Yes	No	[illegible]	No
Minimum 4¾ x 6 inch wiring gutter	Yes	No	No	No
Unit Pull handle	Yes	[illegible]	No	No
Vertical Bus, minimum 5 inch spacing	Yes	No	No	No

CONTROL CENTER

50% in Floor Space

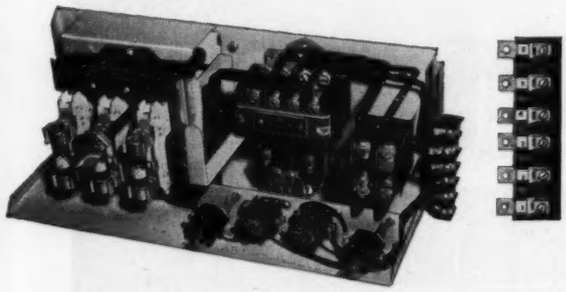
Split Type "B" Terminal Blocks allow you to add, switch or extract control units *without disturbing established wiring.*

Individual stab mountings cut your maintenance costs by as much as one-third because they can be replaced individually.

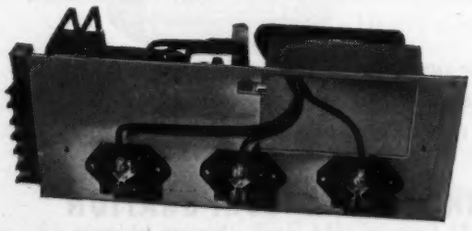
Positive grounding of each control unit *before* units engage bus bars. This, plus locking devices for both the control unit and operating handle, gives *added* protection.

Add a whole host of other design developments and you'll agree the DA7093 is designed for the future — *your* future.

For further details, please contact your nearest General Electric Apparatus Sales or Assemblies & Components Sales representative. Or write for Bulletin GEA-6160 — General Electric Co., Distribution Assemblies Department, Plainville, Connecticut.

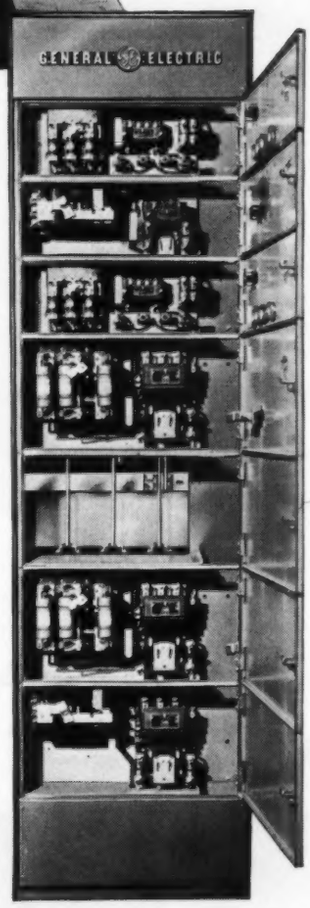


Control unit showing neat arrangement for easy maintenance. Type "B" Terminal Blocks (shown right) permit unit to be removed without disturbing wiring. Notice the fusible disconnect that can accommodate either or both Type NEC or Type CLF current limiting fuses.



Rear view of Control unit showing three individual bus stabs of silver-plated pure copper. Re-inforced with heat-treated spring steel, they assure positive contact with vertical bus.

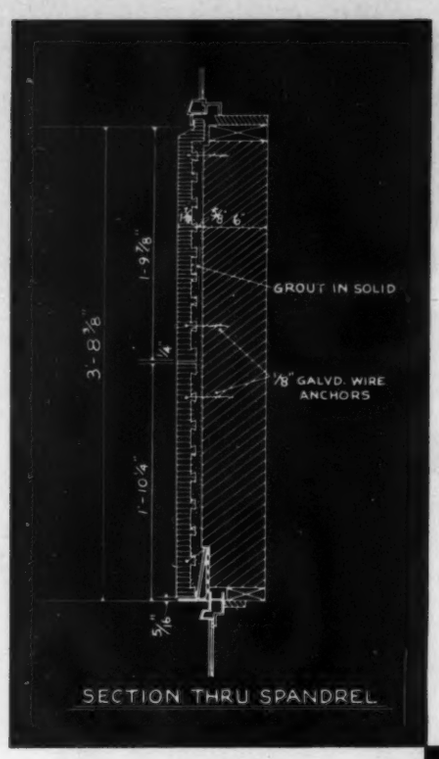
Let a G-E motor control specialist show you how to conserve your motor control floor space. Let him help you select equipment for your specific requirements.



1. Center busing ups bus capacity from 300 to 600 amps . . . leaves top and bottom pull boxes free for wiring within and between sections. Result: more ampere capacity per dollar; quicker, easier installation.
2. Large wiring gutters (4¾" x 6"), plus wiring straps to keep wiring clear of units, simplify installation.
3. Removable cover plates for continuous center busing . . . hasten installation.
4. Doors that open past center so they won't hamper installation or maintenance work.
5. Disconnect handle takes three padlocks for added safety.
6. Pilot devices are mounted on control unit, thus eliminating across-the-hinge wiring . . . preclude frayed wiring with resulting short circuits.

Progress Is Our Most Important Product

GENERAL ELECTRIC



Design in color...
and add sculpture for extra character

So versatile is Architectural Terra Cotta, it encourages you to design freely, regardless of building type. You can specify sculpture, plain surfaces or both . . . in any color or combination of colors in the spectrum. You can specify individual units large or small, for interiors or exteriors. Whatever your specifications, you can be sure they will be followed precisely . . . for Architectural Terra Cotta is custom-made to close tolerances by ceramic craftsmen using modern equipment. Another advantage, in addition to quality, appearance and permanence, is minimum maintenance. Simple soap-and-water washings retain the original richness and beauty of Architectural Terra Cotta indefinitely. No other building material offers so much at so reasonable a cost. Write for latest data today.

ROSA COPLON JEWISH HOME
BUFFALO, NEW YORK

Milton Milstein —
— Architect

Metzger Construction Company —
— Builder

Spandrels and entrance facade are gray-green Architectural Terra Cotta units, 22" x 24" x 2". Decorative sculpture is buff unglazed to harmonize with the brick.

Construction detail, data, color samples, estimates, advice on preliminary sketches, will be furnished promptly without charge on Architectural Terra Cotta and Ceramic Veneer.

FEDERAL SEABOARD TERRA COTTA CORPORATION

10 East 40th Street, New York 16, N. Y.
PLANTS AT PERTH AMBOY AND SOUTH AMBOY, N. J.

F S T C

FOR THE MODERN BATHROOM...

HALL-MACK®

THE NEW...

TOW'LESCOPE

RECESSED OR SURFACE UTILITY BARS

ONE OF A SERIES ON

HALL-MACK
CREATIONS IN CHROME

Here's a bright new idea in bathroom convenience...a space-saving utility bar that actually telescopes into the wall when not in use! For extra drying space... for nylons, lingerie or guest towels...this modern bathroom accessory adds a full 14" bar with a minimum of wall space! Its clean, modern appearance fits into any bathroom, adds to its beauty and usefulness.

It's another of Hall-Mack's original ideas—*extra touches* that help you design distinctive bathrooms! Be sure to specify Hall-Mack—and Hall-Mack quality—always!

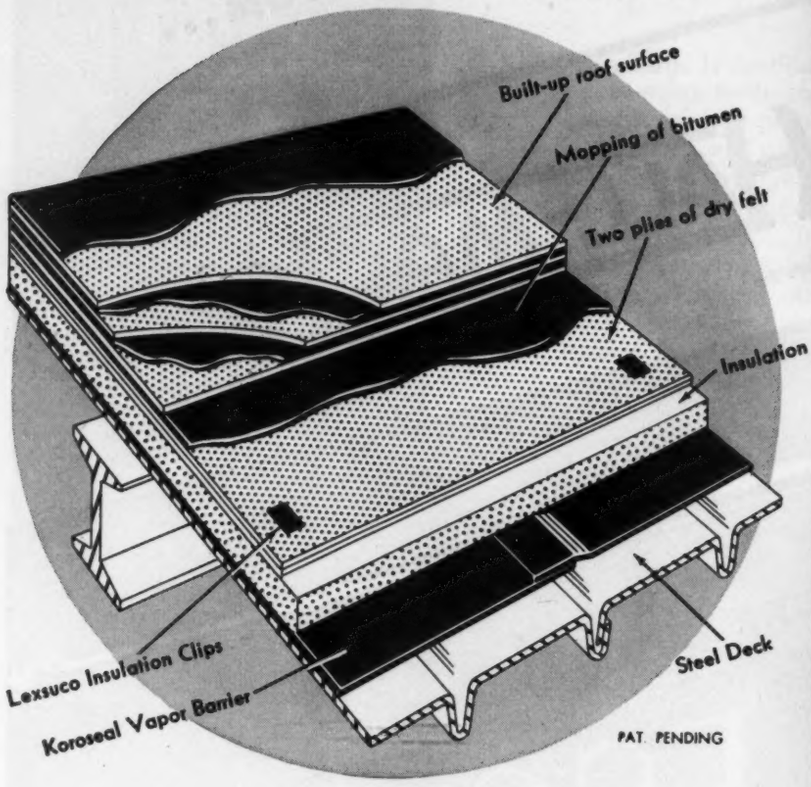
HALL-MACK COMPANY

1380 West Washington Boulevard, Los Angeles 7, California
7455 Exchange Avenue, Chicago 49, Illinois
1000 Main Avenue, Clifton, New Jersey

SOLD BY LEADING PLUMBING, TILE AND HARDWARE DEALERS EVERYWHERE

LEXSUCO *Engineered Products for the Construction Industry*

LEXSUCO ROOF CONSTRUCTION



Fire-retardant vapor barrier of Koroseal flexible material is installed on roof of large Ohio factory. This avoids placing inflammable materials on steel deck where they become a hazard in case of plant fire.

Insulation goes over Koroseal, then two piles of dry roofing felt. These materials are fastened mechanically by positive-locking Lexsuco Insulation Clips driven thru steel deck.

Final step is application of standard 4-ply built-up tar and gravel roof. Lexsuco Roof Construction was installed on this 500,000 sq. ft. roof at cost comparable to conventional roofing.

*Koroseal** VAPOR BARRIER ASSURES NEW FIRE SAFETY FOR AUTO PLANT

LEXSUCO's new fire-retardant roof design has been recently installed on the new 11½-acre Ohio plant of a major automotive manufacturer. This "new look" in roofing provides increased fire safety—at no extra cost!

Improved fire protection results from the use of a specially compounded, non-inflammable Koroseal Vapor Barrier having a minimum life expectancy of 20 years. Easy to install in a single-ply, 4-mil thickness, the Koroseal replaces hazardous conventional materials. As shown in the diagram, the Koroseal and insulation are not hot mopped to the steel deck, but are securely pinned with LEXSUCO Insulation Clips. A standard built-up roof is applied over this base.

This LEXSUCO ROOF CONSTRUCTION eliminates all burnables in the vulnerable area between roof deck and insulation. Thus, no combustible materials can drop into a plant fire below. Other LEXSUCO roof designs with and without a vapor barrier are applicable to all type roof decks for fire resistance proved superior in full-scale fire tests.

Specify the fire-retarding LEXSUCO ROOF CONSTRUCTION—it can be installed at a cost no greater than that of standard roof designs! For further information or a complete "Technical Report", write: *Lexsuco, Incorporated, 4813 Lexington Ave., Cleveland 3, O.*

*T. M. Reg. B. F. Goodrich Co.

LEXSUCO
INCORPORATED

which of these feed-in duct features *rate highest with you?*

architects

rate these SQUARE D features particularly high:

lowest known voltage drop . . . maximum efficiency, minimum power loss

smallest cross-sectional area . . . conserves valuable installation space

contractors

give these features top billing:

reduced installation time . . . simplified components, factory prefabrication

new joint design (*lower right*) . . . all joint ends identical, connection bolts face outward

interchangeable standard fittings . . . permit horizontal or vertical riser applications

users

vote these SQUARE D features tops:

low cost installation and maintenance . . . most accessible connections

totally enclosed . . . permanent safety construction, excludes dust

completely reuseable . . . rearrangement with the same components

EXCLUSIVE JOINT DESIGN

SQUARE D's **exclusive** joint design saves installation time and reduces maintenance cost. Joint ends are identical—unnecessary to select mating ends before positioning or hanging duct sections. Outward-facing, pre-installed bolts permit rapid assembly and easy maintenance.

ASK YOUR ELECTRICAL DISTRIBUTOR FOR SQUARE D PRODUCTS

SQUARE D COMPANY

Kennecott's new adequate

and what it means to the Architect!

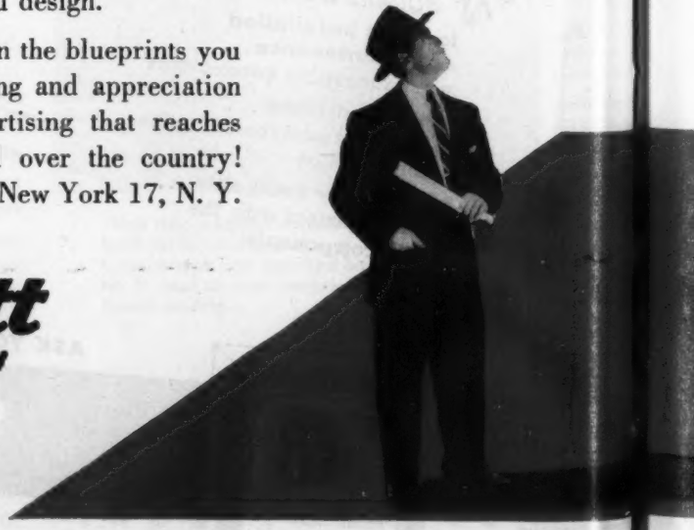
Few things are more important today to Mr. and Mrs. Homeowner than the way their homes are electrically powered! He and she, as never before, depend upon a whole houseful of appliances for convenience and comfort. These "electrical servants," in turn, must be fed plenty of power to operate smoothly at their full, built-in strength.

That's why you plan your houses with more than a casual eye to the specifications and layouts of their wiring systems. You see to it that the wires, themselves, are *large enough* . . . that circuits are *plentiful* . . . that outlets are just *where they are needed.* Because *you* know that's *quality wiring. Unfortunately, too many prospective homeowners don't realize it!*

That's where Kennecott's national adequate wiring campaign comes into YOUR picture!

You've seen the advertisements of this campaign in the pages of the Saturday Evening Post and This Week magazines. It's an *educational* campaign that's teaching millions of people how to recognize adequate wiring as a prime quality feature in the houses you design.

So, today, when you point out "adequate wiring" in the blueprints you show your clients, you'll find greater understanding and appreciation of your efforts — thanks to this Kennecott advertising that reaches more than 15,130,000 readers every month, all over the country! Kennecott Copper Corporation, 161 East 42nd St., New York 17, N. Y.



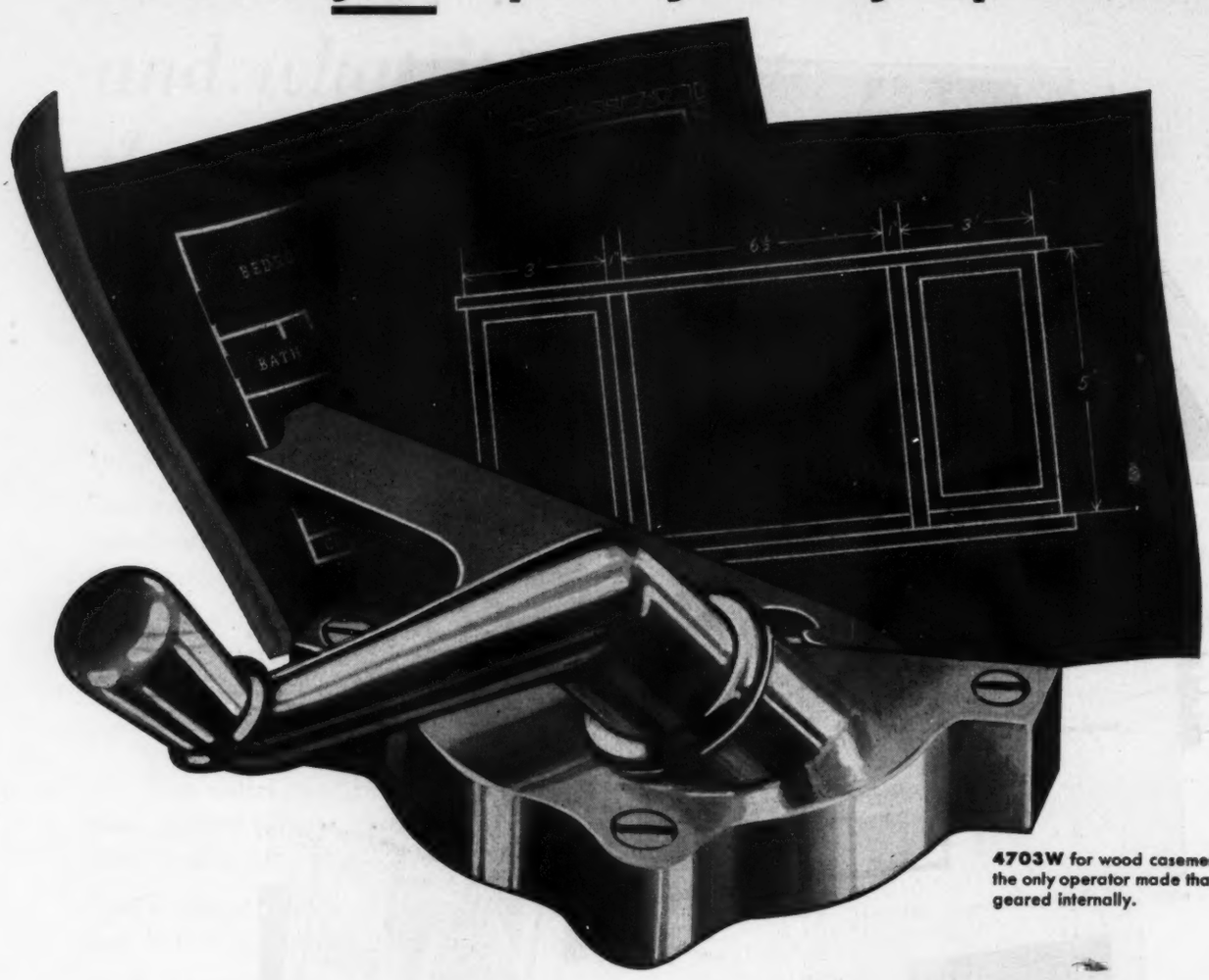
Kennecott
COPPER CORPORATION

Fabricating Subsidiaries:
CHASE BRASS & COPPER CO.
KENNECOTT WIRE & CABLE CO.

ewiring campaign.....

This Week
Magazine
THREE CHEERS! Her broiler just broiled a crisp, juicy steak!
Isn't it do that before?
Kennecott
HOORAY! Now his TV set always shows full-sized pictures!
Why couldn't it do that before?
They're showing old-fashioned 'flickers' in so many homes these days!
Kennecott

When the plans specify casements be sure you specify Getty operators



4703W for wood casements, the only operator made that is geared internally.

Just opening and closing, casement windows may move hundreds of miles in several years of service. Make sure, on your next job, they move easily and smoothly by specifying Getty operators.

Getty offers you a complete line—to fit every wood or metal casement.

Getty backs you with a record for long, maintenance-free performance in every type commercial, institutional and residential building.

Remember—more Getty operators are used today than all other makes combined. Why take chances with lesser known brands? On your next job specify Getty operators for all casement windows.

H. S. GETTY & CO., INC.

see our CATALOG in

3348 North 10th Street • Philadelphia 40, Pa.

Getty Operators Are Found on More Casement Windows Than All Other Operators Combined

for you, *Mr. Architect!*

ARKETEX

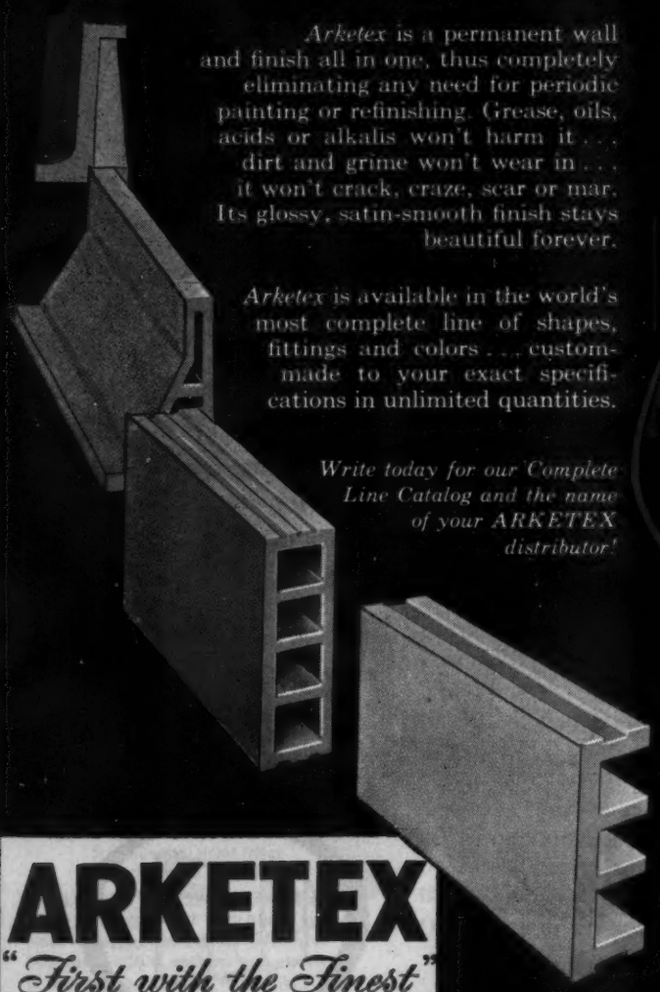
GIVES LASTING BEAUTY WITH A MINIMUM OF CARE!

Architects and builders have found *Arketex* Ceramic Glazed Structural Tile *most practical* for all types of buildings because Arketex is *most economical*. Look at the facts!

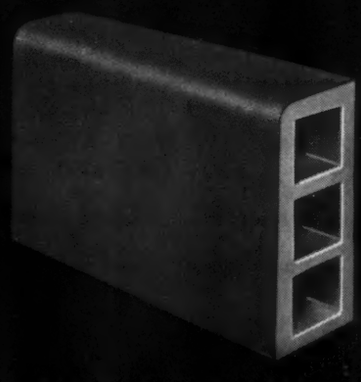
Arketex is a permanent wall and finish all in one, thus completely eliminating any need for periodic painting or refinishing. Grease, oils, acids or alkalis won't harm it . . . dirt and grime won't wear in . . . it won't crack, craze, scar or mar. Its glossy, satin-smooth finish stays beautiful forever.

Arketex is available in the world's most complete line of shapes, fittings and colors . . . custom-made to your exact specifications in unlimited quantities.

Write today for our Complete Line Catalog and the name of your ARKETEX distributor!



FIRST COST IS THE ONLY COST!



ARKETEX

"First with the Finest"

CERAMIC GLAZED STRUCTURAL TILE

ARKETEX CERAMIC CORPORATION
BRAZIL, INDIANA

THE WORLD'S LARGEST EXCLUSIVE MANUFACTURER OF CERAMIC GLAZED STRUCTURAL TILE

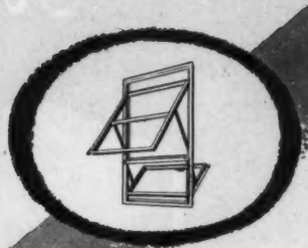
Refer to Sweet's File No. 3f/Ar

IS YOUR NEXT WINDOW REQUIREMENT FOR

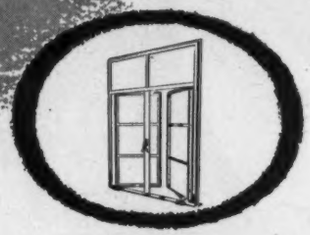
- *A thousand-unit project?*
- *A large institution?*
- *A single residence?*

Whichever it is, we've good reason to believe there's a Ware window that'll suit your needs to a "T". Why? Because Ware engineering and quality standards have proved their value to so many others, in so many varied applications.

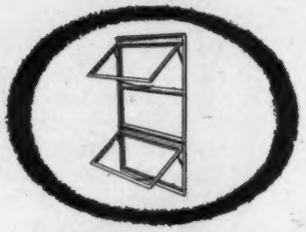
Why not get all the facts for yourself? Our sales engineering staff is ready to assist you on special problems—and our regional warehousing system provides overnight service to most cities. Write Dept. R-9.



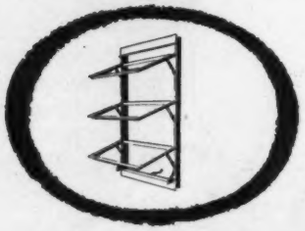
Projected



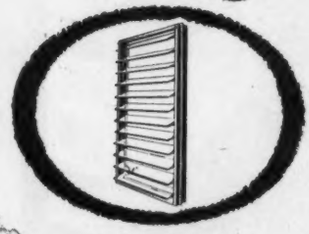
Casements



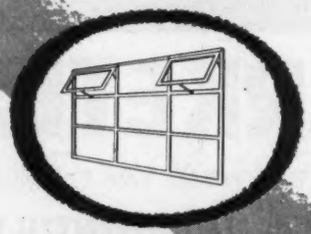
Econ-O-Ware Awning



Intermediate Awning



Jalousie



Econ-O-Wall

Aluminum **WARE** *Windows*

Ware Laboratories, Inc., 3700 N.W. 25th St., Miami, Florida

MEMBER OF THE ALUMINUM WINDOW MANUFACTURERS ASSOCIATION

We like the door's "electronic politeness"

THE PRUDENTIAL BUILDING
South-Central Home Office
Jacksonville, Florida

The beautiful new 22-story PRUDENTIAL INSURANCE COMPANY BUILDING—tallest office structure in Florida—will have 9 Otis AUTOTRONIC operatorless elevators. It will be the center of Prudential's vast South-Central Home Office operations, and its 8 upper floors will be available to other tenants. This is one of more than 175 new and modernized office buildings, hotels, hospitals, banks, and department stores that have given AUTOTRONIC elevatoring an overwhelming vote of confidence —by buying it!

Architects: Kemp, Bunch & Jackson

Passengers quickly discover why they like the Otis Electronic Elevator Door. It's the invisible *electronic zone of detection* that extends in front of the leading edges of both car and hoistway doors up to shoulder height—*as shown in phantom above*. It inspires passenger confidence.

Whenever this *electronic zone* detects a person's presence in the doorway, the doors politely reverse before they can touch the passenger. But if there is no chance of passenger interference, the doors close promptly after each stop.

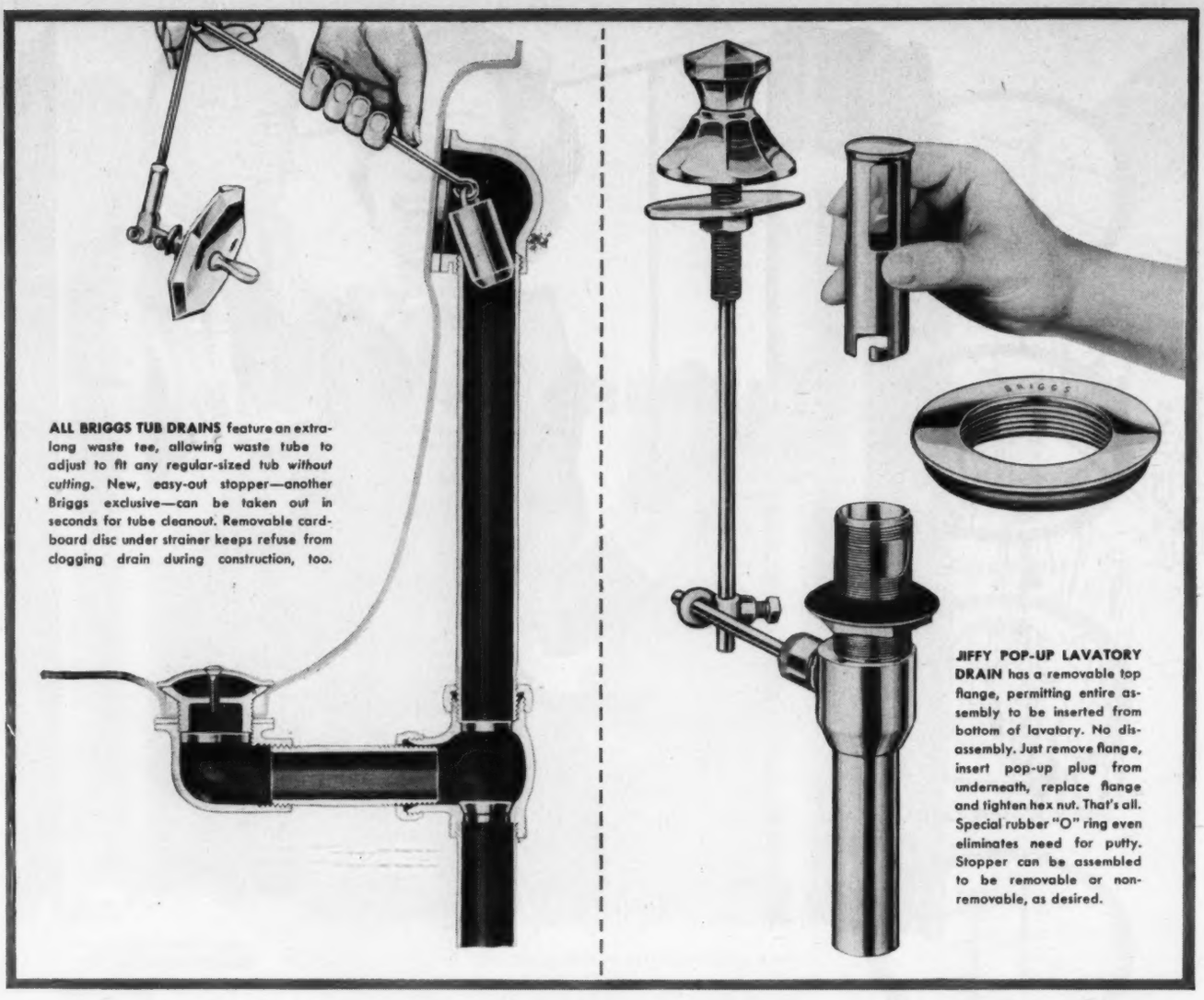
This *zone of detection* prevents unnecessary delays. If a talkative passenger lingers overlong in the doorway, a buzzer sounds and the doors slowly, firmly—but politely nudge the passenger out of the doorway so that the car can proceed on its way.

The Otis Electronic Elevator Door is the crowning achievement in the field of the operatorless elevator. Its successful development insured the ability of operatorless elevators to move great masses of people in busy buildings with the greatest degree of safety. Ask any of our 268 offices for details.

Otis Elevator Company, 260 11th Ave., New York 1, N. Y.

Otis

COMPLETELY AUTOMATIC
AUTOTRONIC®
ELEVATORING



ALL BRIGGS TUB DRAINS feature an extra-long waste tee, allowing waste tube to adjust to fit any regular-sized tub *without cutting*. New, easy-out stopper—another Briggs exclusive—can be taken out in seconds for tube cleanout. Removable cardboard disc under strainer keeps refuse from clogging drain during construction, too.

JIFFY POP-UP LAVATORY DRAIN has a removable top flange, permitting entire assembly to be inserted from bottom of lavatory. No disassembly. Just remove flange, insert pop-up plug from underneath, replace flange and tighten hex nut. That's all. Special rubber "O" ring even eliminates need for putty. Stopper can be assembled to be removable or non-removable, as desired.

Engineering features like these make BRIGGS drains work better, wear longer

All Briggs plumbing ware is designed and built to please customers . . . eliminate call backs

If you've ever used Briggs plumbing ware, *you know!* . . . it's the best designed, most dependable brand of all.

Two examples of *why* are shown above, and we've listed a few more at the right. Needless parts have been eliminated at no sacrifice in quality. Assemblies have been engineered to make installations simpler. All parts have been pre-tested to fit right, work right . . . give lasting customer satisfaction.

Order Briggs Beautyware. You'll profit from its quality.

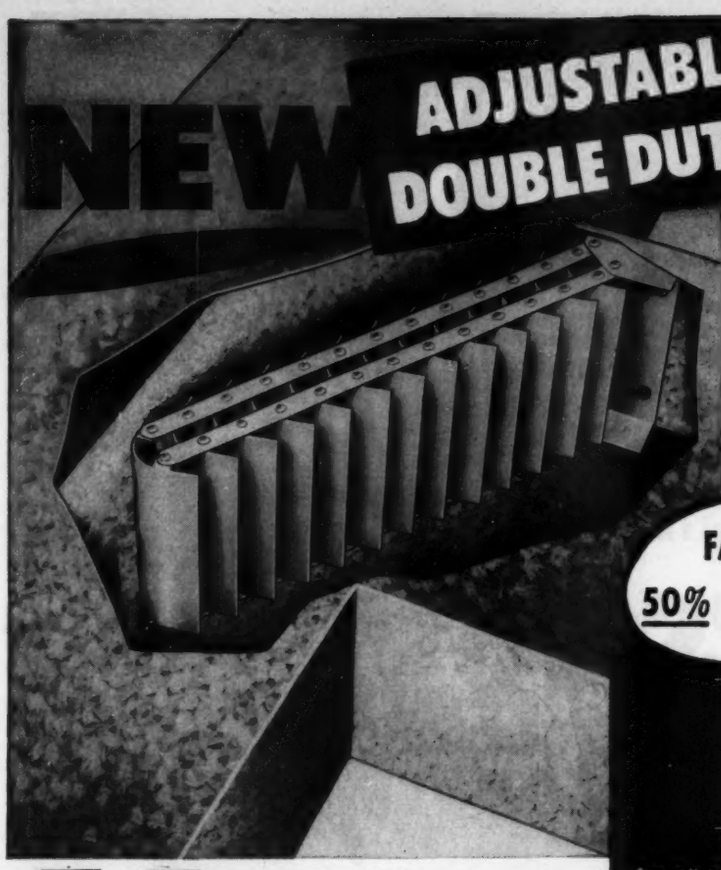
OTHER ENGINEERING FEATURES

- Closet combination with only 2 bolt holes for fast, neat installations
- Leg and towel bar attachment with quick-fitting, key-slot design.
- Rigid-frame tub construction makes it free-standing . . . needs no wall support
- Wall-surface tub and shower fitting really fits . . . solders easily

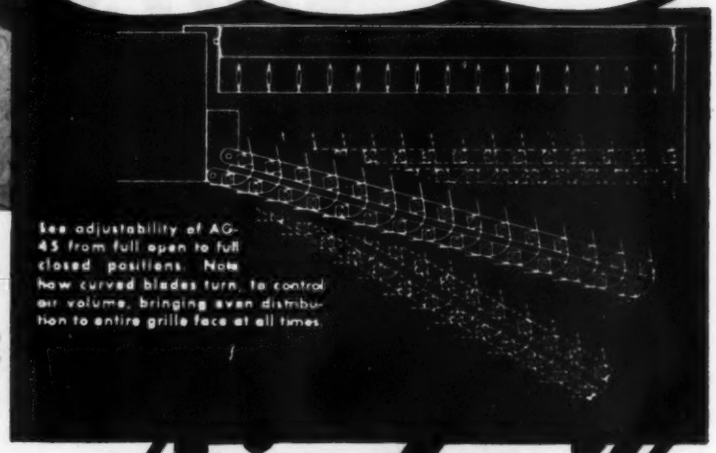
©1954

BRIGGS MANUFACTURING COMPANY • DETROIT 26, MICHIGAN BRIGGS

NEW ADJUSTABLE DOUBLE DUTY AIR VOLUME EXTRACTOR & CONTROLLER



FACTORY ASSEMBLY SAVES UP TO 50% OVER SLOW HAND-MADE METHODS



See adjustability of AG-45 from full open to full closed positions. Note how curved blades turn, to control air volume, bringing even distribution to entire grille face at all times.

11 TREMENDOUS ADVANTAGES:

1	FACTORY ASSEMBLED
2	INSTALLS WITH 2 SCREWS
3	Double Duty Extractor & Vol. Controller
4	Replaces Extra Vol. Controller
5	Equalizes Air Distribution & Air Flow
6	Turns Air from Main Duct
7	Reduces Pressure Losses
8	Stops Excess Turbulence
9	Low Cost
10	Rattle Free
11	14 & 20 Gauge Steel

Airfoil

AIR CONDITIONING OUTLETS

Slash unit costs with this amazing new Titus AG-45. Make it easy for yourself to *keep bids low.* Use this *cost saver* to beat competition. Eliminate the extra work of putting in volume controllers. Save time, labor. IMPROVE THE AIR CONTROL EFFICIENCY OF EVERY INSTALLATION. Get complete free information now. Order a sample AG-45 today. Remember, not until you have one of these AG-45s in your hand, can you see its *amazing cost-saving value.* IMMEDIATE DELIVERY.

Free

Check Type of Grille on Which Information Is Desired:

- ☐ Air conditioning outlets
- ☐ Return air grilles and registers
- ☐ Volume controllers
- ☐ Perforated metal and ornamental grilles
- ☐ Industrial grilles
- ☐ Special made-to-order grilles

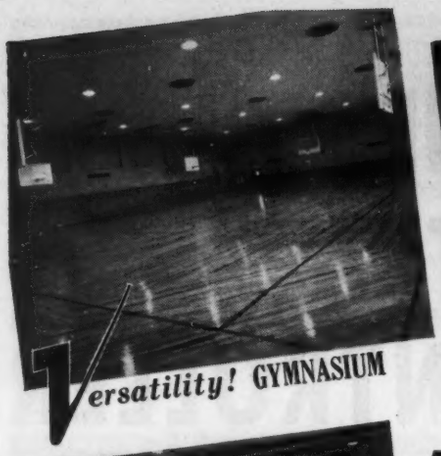
TITUS MANUFACTURING CORP., WATERLOO, IOWA

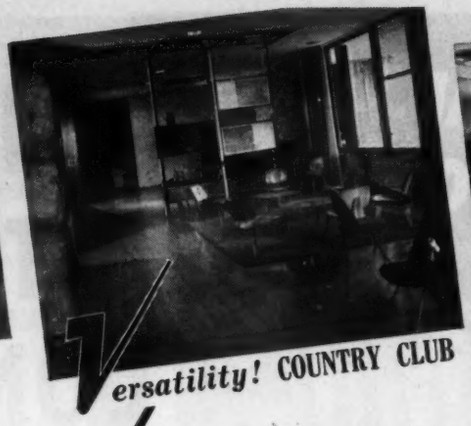
- ☐ RUSH information on AG-45 Extractor & Controller
- ☐ Send complete catalog
- ☐ Send literature on above checked items

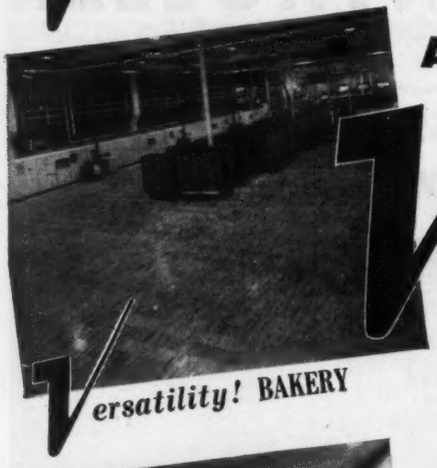
NAME _____

ADDRESS _____

CITY _____ STATE _____



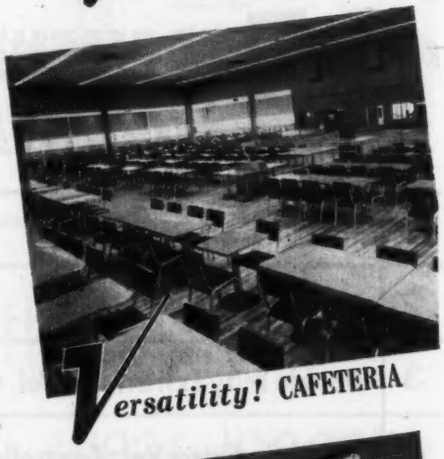


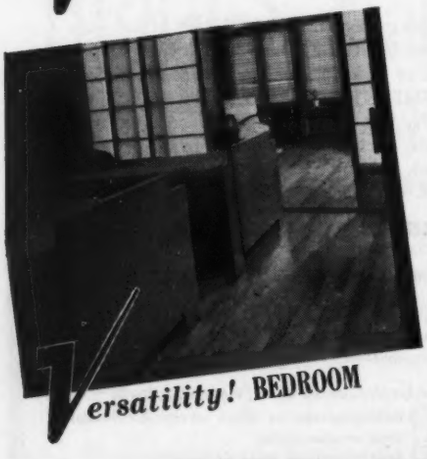


ALL FLOORED with

Versatile!

NORTHERN HARD MAPLE





Neither science nor Nature herself has yet produced a flooring material that serves so many varying needs so well and so long as *resilient* Northern Hard Maple. Here are nine typical areas where maple is a normal, and eminently sound, specification. There are a great many others. Produced in strip, block and patterned designs, under strict **MFMA** grading and dimension regulations, and properly laid, maple serves for years with simple, routine maintenance. It's tough —asks no babying. It's bright, smooth, tight, crevice- and splinter-free. Specify it with the confidence it has earned so well. See Sweet's Arch. 12k-MA, or write for AIA full-color File Folder.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
Suite 550, Pure Oil Building
Chicago 1, Illinois

FLOOR WITH *NORTHERN* HARD MAPLE
BEECH AND BIRCH

NO OTHER AWNING WINDOW has this exclusive

Strip-proof OPERATOR

Ualco
U-AL-CO

ALUMINUM
AWNING WINDOWS

With the turn of the operator handle . . . one operation . . . the exclusive built-in cam lock torsion bar unlocks, opens, closes and locks the ventilators which are actuated on each side. Completely eliminates the stripping of gear threads through failure to unlock window before opening.

This is but one of the many exclusive features that is helping to create over-all preference for Ualco Awning Windows. We've steadily expanded production facilities of these units to meet volume demand . . . will continue expansion to always meet it.

Ask About Our Engineering Planning Service
Specifically designed to assist Architects, Engineers and Contractors in making "take-offs" and solving their window problems.

ALUMINUM WINDOWS . . .
The Difference Between Dollars Wasted And Dollars Saved!

- Never Rot · Never Rust
- Never Need Painting
- No Upkeep Expense Of Any Kind

RANCH WALL

AWNING HOPPER

SELECT-A-VENT

See Our Catalog In Sweet's Architectural File 16 a / Un Or Write Us For Complete Information

SOUTHERN SASH SALES & SUPPLY CO. • SHEFFIELD, ALA.

WAREHOUSES: ELIZABETH, N. J.; CANTON, OHIO; MONTGOMERY, ALA.; HIALEAH, FLA.; VAN NUYS, CALIFORNIA

UALCO WINDOWS ARE UNCONDITIONALLY GUARANTEED AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP

DOUBLE HUNG

AWNING

JALOUSIE

CASEMENT

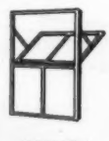
HOPPER

PIVOTED

PROJECTED

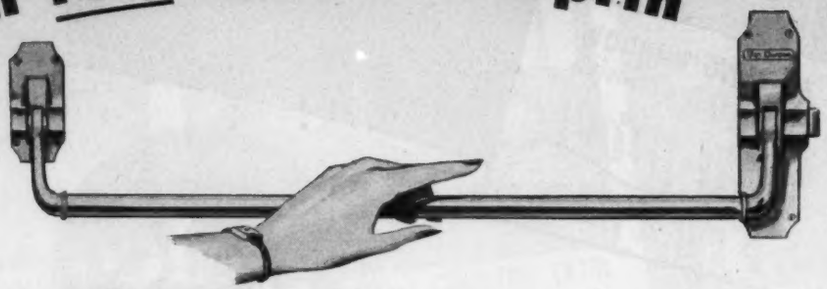
TWINSUL

BASEMENT

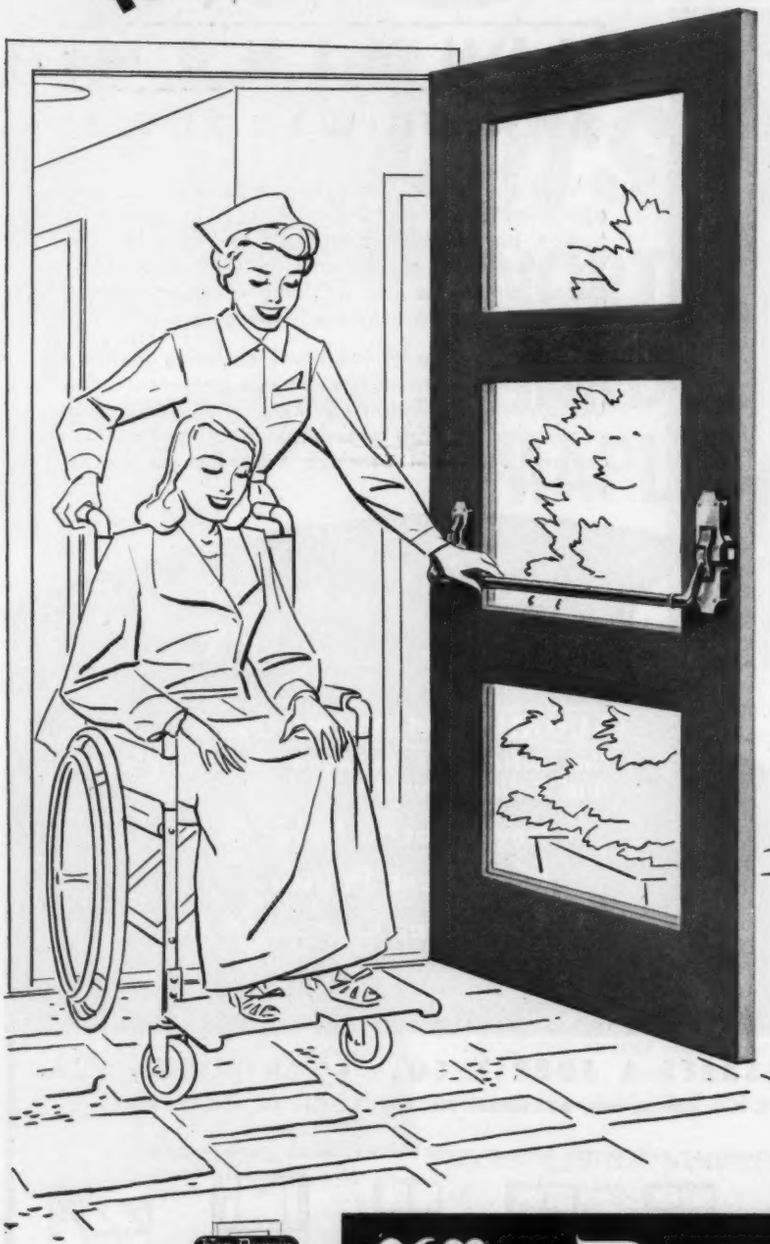

UTILITY

UALCO THE WORLD'S LARGEST MANUFACTURER OF ALUMINUM WINDOWS

You can rely on Von Duprin



to unlock any door . . . every time!



● Unfailing exit devices are a *must* in hospitals . . . and that makes Von Duprin the first choice among leading hospital officials and architects.

Precision-made Von Duprin devices respond instantly and positively—no matter how often or seldom they are used. They provide the operating ease so important to hospital routine . . . and the assurance of *performance* in case of an emergency.

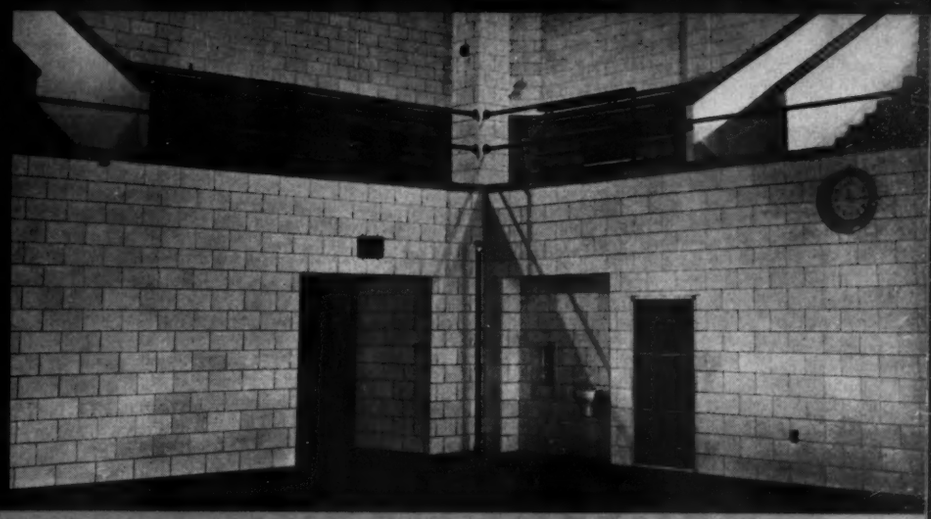
Next time you design or remodel a hospital—or any other building, for that matter—be sure you provide "the safe way out," by specifying Von Duprin exit devices. If you'd like, a Von Duprin "Exit Specialist"—a factory representative or a selected builders' hardware distributor—will be happy to work with you in choosing the most practical installation. A post card or phone call will bring him your way!

VON DUPRIN DIVISION
VONNEGUT HARDWARE COMPANY
402 West Maryland Street
Indianapolis 9, Ind.

Von Duprin PANIC DEVICES

Von Duprin Fire and Panic Exit Devices

Which Facing Tile job is brand new?



North Shore Hospital Nurses' Station, Emergency Admitting Section
Manhasset, Long Island. Architect: Isadore Ronsenfield

Wauwatosa High School Gymnasium, Wauwatosa, Wisconsin. Architects: Herbst & Kuenzle

Which is 16 years old?

As these two recent photographs show, it's hard to guess the age of a well laid-up wall of structural clay Facing Tile.

Thanks to walls of durable Facing Tile, a 16-year-old school gymnasium (top, right) looks just as clean and bright today as a nurses' station in a brand new hospital (bottom, left).

You can *count* on Facing Tile for satisfactory performance—

- *as an economical wall-and-finish in one*
- *as a positive help to sanitation and maintenance*
- *as a permanent, pleasing color background*

Facing Tile has been thoroughly tested by years of varied uses in practically every category of building. It gives you more for the dollar than any other single building material.

For complete data on Facing Tile, just write one of the Institute offices listed below.

LOOK FOR FTI THIS SEAL

Used only by the members of the Facing Tile Institute, it is your assurance of highest quality. In the interest of better Facing Tile construction the companies listed here have contributed to the preparation of this advertisement.

CHARLESTON CLAY PRODUCTS CO.
Charleston 22, West Virginia

THE CLAYCRAFT CO.
Columbus 16, Ohio

HYDRAULIC PRESS BRICK CO.
Brazil, Indiana

MAPLETON CLAY PRODUCTS CO.
Canton, Ohio

METROPOLITAN BRICK, INC.
Canton 2, Ohio

McNEES-KITTANNING CO.
Kittanning, Pennsylvania

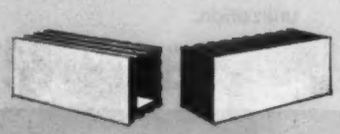
NATCO CORPORATION
Pittsburgh 22, Pennsylvania

STARK CERAMICS, INC.
Canton 1, Ohio

WEST VIRGINIA BRICK CO.
Charleston 24, West Virginia

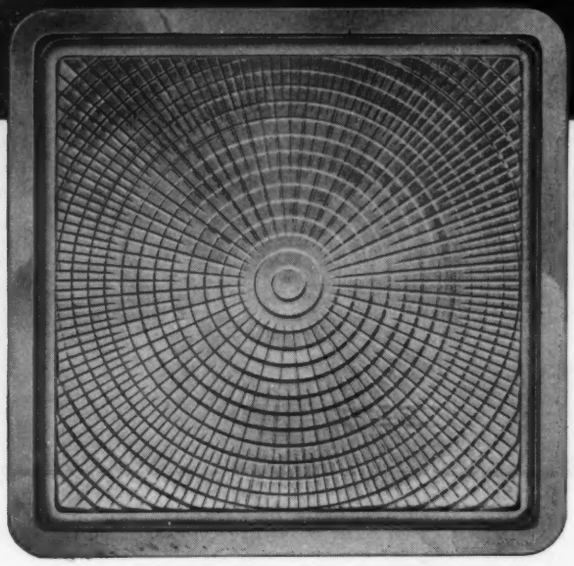
FACING TILE INSTITUTE

1520 18th Street, N. W., Hudson 3-4200, Washington 6, D. C. • 1949 Grand Central Terminal, Murray Hill 9-0270, New York 17, N. Y. • 2556 Clearview Avenue, Canton 5-5329, Canton 8, Ohio • 221 N. LaSalle St., Andover 3-6449, Chicago, Ill.



Offer clients these benefits by specifying

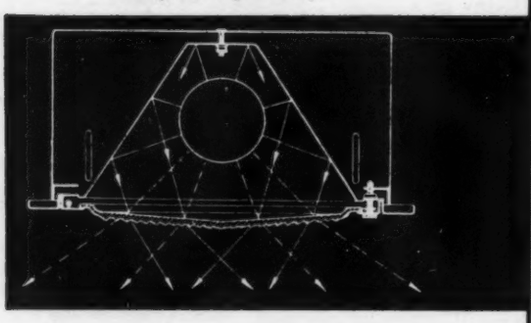
ART METAL advanced ELIPTISQUARE



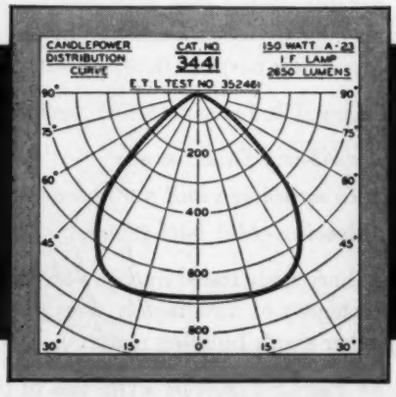
with clear, prismatic AMCOLENS

- Lighted objects reflect their true color value
- Highest light transmission efficiency
- Precise light direction control
- Edge light to ceiling for visual comfort
- Shallow recessed lens lighting

advanced ELIPTISQUARE
Multiplies Light Output



Eliptisquare reflector redirects *all* box-enclosed light downward through AMCOLENS to multiply lamp light utilization.



Please notice that the candlepower distribution curve is by Electrical Testing Laboratories, Inc., not The ART METAL Company.

May we send Bulletin 254 which gives complete details? Please write:

THE **ART METAL** COMPANY
CLEVELAND 3, OHIO

Manufacturers of Engineered Incandescent Lighting

stainless *is just what the doctor ordered*

From operating room to laundry room... kitchen to lobby – Crucible Rezistal® stainless steel can be the best friend a hospital ever had. Wherever you need a neat, attractive metal *that stays good looking* with little care – look to stainless by Crucible.

Curtain walls of stainless are outstanding, too. Stainless steel's exceptional ability to meet the most rigid fire tests, because of its heat-resisting properties, coupled with its inherent high strength, mean *lighter* construction, yet *maximum protection for patients.*

And, of course, the proved fact that stainless is so easy to maintain up to top sanitary standards... is so rugged that it can take any beating an overworked staff may give it – these factors have helped make Crucible stainless steel the popular, functional material in modern hospital design.

Let Crucible's experienced staff help you plan for the most effective use of this economical, practical metal. For quick, helpful suggestions – *call Crucible.*

54 *years of* Fine *steelmaking*

CRUCIBLE first name in special purpose steels

STAINLESS STEELS

CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.

REX HIGH SPEED • TOOL • REZISTAL STAINLESS • MAX-EL • ALLOY • SPECIAL PURPOSE STEELS

Canadian Distributor — Railway & Power Engineering Corp., Ltd.

How Northland Shopping Center Planners us

The J. L. Hudson department store, which developed Northland, used *Thermopane* insulating glass in its front. *Thermopane* reduces steam and frost on windows in winter . . . helps muffle outside noise. *Project Architects:* Victor Gruen & Associates, Inc., Hollywood and New York.

. . . a few of the Northland stores usi

MASKELL FLOWERS

KRESGE'S

NO FINER GLASS THAN LIBBEY · OWENS · FORD PC

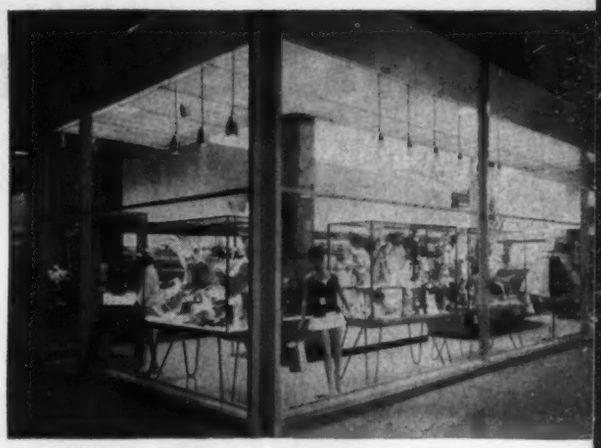
rsused L·O·F POLISHED PLATE GLASS for Visual Fronts

Practically no restrictions were put upon the storefront designs of the 80-odd units in the Northland Shopping Center in Detroit. And each store was designed independently, except for coordination by the project architects. Yet, all over the Center, there is one common denominator: *Large plate glass "visual fronts", designed to put a store's entire interior on display to pedestrians.*

Of course, waviness and distortion would ruin the whole effect, so store after store at Northland was glazed with L·O·F Polished Plate Glass.

No matter what your next job may be, you'll want the true vision, beauty and luster of L·O·F Plate Glass. For special applications, these same qualities are available in *Thermopane** insulating plate glass, Heat Absorbing Plate Glass, *Tuf-flex** tempered plate glass and others.

For details on any of the standard or special types of plate glass, call your nearest L·O·F Glass Distributor or Dealer. Or write Libbey·Owens·Ford Glass Co., 608 Madison Avenue, Toledo 3, Ohio. *®

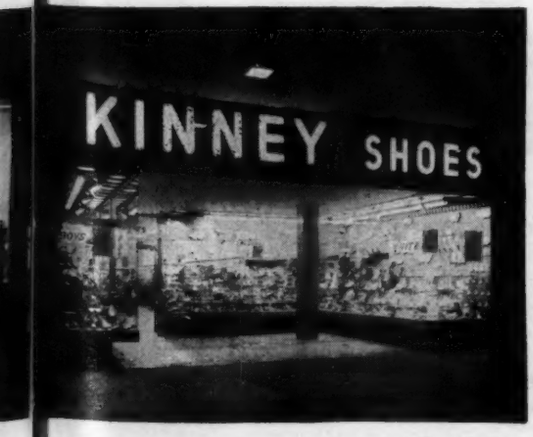


ROBELLE SHOP

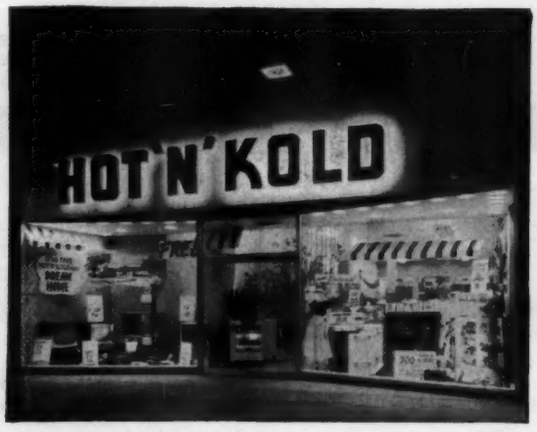
BRENNAN'S

HIMELHOCHS

es using L·O·F Polished Plate Glass



KINNEY SHOES



THE HOT 'N' KOLD SHOP

D POLISHED PLATE GLASS

L·O·F GLASS Carrwlux FIBER-GLASS

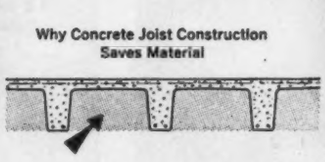
How Ceco-Meyer Steelform Construction Saved 25% on Concrete

✚ This is the story of how a Building-Realtor gained more rental income and saved on building costs. Garfield I. Kass looked at his two story building in downtown Washington, D.C. and visualized it reaching 11 more stories into the sky. That, of course, would mean more income from his building site. But a problem was posed . . . would the existing footings and columns, though designed for additional construction, carry 13 floors?

Architect James F. Hogan reasoned light loads were the answer, so he considered several floor framing methods to find as light a construction as possible. The spans were long—33 feet—and of all designs investigated Ceco-Meyer Steelform construction proved to be lightest. Why? Because 25% less concrete was required than for any other method. Ceco-Meyer Steelform construction is strong and rigid, yet light in weight—for all non-working concrete is eliminated.

Ceco Product Specialists can help you save through product engineering. So before you plan your next project, call on Ceco. Consult Sweet's File for address. CECO

Steelforms are quickly installed on open wood centering. Cost is reduced because same lumber and Steelforms are re-used from floor to floor.



Shaded portions show concrete eliminated by concrete joist construction.

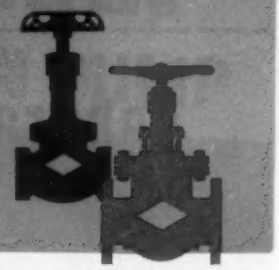
CECO STEEL PRODUCTS CORPORATION
Offices, warehouses and fabricating plants in principal cities.
General Offices: 5601 West 26th Street, Chicago 50, Illinois

CALL CECO FOR STEELFORM SERVICE—REINFORCING STEEL
STEEL JOISTS—ROOF DECK—STEEL & ALUMINUM WINDOWS

Buyers' Guide to lasting valve economy

It took some squeezing to list on one page nearly 400 Industrial Distributors and Plumbing-Heating Supply Dealers who sell Jenkins Valves. Finding your local Jenkins Distributor in this list may take a close look, but it's well worth the effort.

Find out about his many services. You'll see why this list is also a reliable *Guide* to the soundest values and lasting economy, in valves, or any other supplies your Jenkins Distributor sells. Look him up. It pays. Jenkins Bros., 100 Park Ave., New York 17.



Industry's top-rated Suppliers sell...

ALABAMA
Birmingham — Noland Company, Inc.
Dothan — Alabama Machinery & Supply Co.
Mobile — Mary Supply Co.
Montgomery — Alabama Machinery & Supply Co.
Noland Company, Inc.
Selma — Selma Foundry & Machine Co.

ARIZONA
Phoenix — Western Supply Company
Tucson — Albert Steinfeld & Co.

CALIFORNIA
Emeryville — Thaler Pipe & Supply Company
Maywood — M. E. Gray Company
San Francisco — Atkins, Kroll & Company, Inc.
P. S. Pell & Company, Ltd.

COLORADO
Denver — Hendrie & Bolthoff Company
Pueblo — N. O. Nelson Co.

CONNECTICUT
Bridgeport — Lewin & Sons, Inc.
The Wellington-Kincaid Co.
Danbury — W. S. Helman, Inc.
Nutmeg Plumbing Supply Co.
Greenwich — Putty & Company, Inc.
Hartford — The Callahan Company
Marsden & Wasserman, Inc.
The Plimpton & Hills Corporation
Thomas Trant & Bro., Inc.
Ward & Hausser
New Britain — New Britain Plumbing Supply Co.
New Haven — The C. S. Mersick & Company
New London — Hansen Supply Co.
Norwalk — County Supply, Inc.
Norwich — The Anderson Supply Company
Putnam — Rawlee Plumbing Supply, Inc.
Stamford — Connecticut Plumbing Supply Co.
Glaubar, Inc.
Waterbury — M. J. Daly & Sons, Inc.

DELAWARE
Wilmington — Hajoca Corporation

DISTRICT OF COLUMBIA
Washington — Thos. Somerville Company

FLORIDA
Fort Lauderdale — Holden-Duncan Company
Jacksonville — Farquhar Machinery Co.
Hajoca Corporation
Miami — Railey-Milam, Inc.
Orlando — Hughes Supply Inc.
Pensacola — Mary Supply Company
Tampa — Hajoca Corporation

GEORGIA
Albany — Georgia Hardware & Supply Co.
Atlanta — Beck & Gregg Hardware Co.
Fulton Supply Company
Grinnell Corp.
Noland Company, Inc.
J. M. Tull Metal & Supply Co.
Augusta — Noland Company, Inc.
Richmond Supply Co.
Columbus — Hajoca Corporation
LaGrange — Industrial Suppliers, Inc.
Macon — Noland Company, Inc.
Taylor Iron Works & Supply Co.
Rome — Battey Machinery Co.
Savannah — Hajoca Corporation
Morgans, Inc.
Valdosta — Whitehead Hardware Co.

IDAHO
Boise — Idaho Hardware & Plumbing Co.

ILLINOIS
Bloomington — Wilkins Bloomington Co.
Chicago — Chicago Tube & Iron Company
James B. Clow & Sons
Great Lakes Supply Corporation
Fred C. Kramer Co.
Miller Supply Company
Whitney & Ford Co.
Danville — Inland Supply Company
Decatur — Field & Sharb Company
DuQuoin — DuQuoin Iron & Supply Co.
Peoria — Wilkins Pipe & Supply Company
Rock Island — American Rad. & Std. Sanitary Corp.
Rockford — D & F Supply Company

INDIANA
Anderson — May Supply Company
Evansville — Plumbers Supply Corporation
Fort Wayne — The National Mill Supply Company
Indianapolis — Plumbers Supply Corporation
Kokomo — The Main Supply Company
LaFayette — Biggs Pump & Supply Co.
Marion — Liniger Company, Inc.
Richmond — H. R. Smith Supply Co., Inc.
South Bend — The South Bend Supply Company
Terre Haute — Mechanical Suppliers, Inc.

IOWA
Cedar Rapids — Cedar Rapids Pump & Supply Co.
Des Moines — A. Y. McDonald Mfg. Co.
Plumb Supply Co.
Dubuque — A. Y. McDonald Mfg. Co.
Fort Dodge — Leighton Supply Co.
Marshalltown — Glick Supply Company
Sioux City — Wigman Company
Waterloo — Winterbottom Supply Co.

KANSAS
Wichita — Phillip & Easton Supply Co.

KENTUCKY
Hopkinsville — Cayce Mill Supply Company
Lexington — Plumbers Supply Company
Louisville — Beltmap Hdwe. & Mfg. Co.
Neill-LaVielle Supply Company
Plumbers Supply Company

LOUISIANA
New Orleans — Edgar Murray Supply Co.
Weil-Gutmann Supply Co.
Shreveport — Mensco Supply Co.

MAINE
Bangor — E. B. Dunning & Co.
Portland — W. L. Blake & Co.

MARYLAND
Annapolis — Thos. Somerville Company
Baltimore — The Taylor Supply Company
Cumberland — Tri-State Mine & Mill Supply Co., Inc.
Hagerstown — Feltz Manufacturing & Supply Co.

MASSACHUSETTS
Attleboro — Reardon & Lynch Co., Inc.
Boston — Atlantic Pipe & Supply Co., Inc.
Conley Supply Co., Inc.
Pierce-Perry Co.
Brockton — Corcoran Supply Co. of Brockton, Inc.
Cambridge — Boston Pipe & Fittings Co., Inc.
Metropolitan Pipe & Supply Co.
R. C. Sullivan Company
Fall River — Corcoran Supply Co. of Fall River, Inc.
Gardner — Royal Supply Company
Holyoke — The Holyoke Valve & Hydrant Co.
Hyannis — E. B. Corcoran of Hyannis
Lawrence — Bride Grimes and Co.
Lowell — Middlesex Machine Company
Lynn — The Bourneuf Corporation
New Bedford — Babbitt Steam Specialty Co.
Peabody — Boyle Machine & Supply Co.
Pittsfield — Berkshire Mill Supply Co.
South Boston — Lumsden & Van Stone, Div.
Charles D. Sheehy, Inc.
So. Sudbury — Hilco Supply, Inc.
Springfield — Charles Miller & Son Co.
Westfield — Warner Supply Co., Inc.
Worcester — Washburn-Garfield Co.

MICHIGAN
Battle Creek — Kendall Hardware Mill & Supply Co.
Benton Harbor — Brammall Supply Co.
Detroit — The Coon DeVisser Company
Flint — A. P. Engelhart & Co.
Grand Rapids — Hayden Supply Co.
Jackson — The Smith Winchester Co.
Kalamazoo — Kendall Hardware Mill & Supply Co.
Lansing — The Michigan Supply Co.
Muskegon — Fisher Supply Co.
Saginaw — Reichle Supply Co.

MINNESOTA
Duluth — Duluth Plumbing Supplies Company
Minneapolis — Central Supply Co.

MISSISSIPPI
Jackson — Harper Foundry & Machine Co.
Noland Company, Inc.
Meridian — Soule Steam Feed Works
Vicksburg — O'Neill-McNamara Hardware Co.

MISSOURI
Cape Girardeau — N. O. Nelson Co.
Jefferson City — N. O. Nelson Co.
Joplin — Joplin Supply Co.
Kansas City — Mid-States Supply Co.
L. C. Pensinger & Son
Reeves-Wiedeman Company
No. Kansas City — Grinnell Corp.
St. Joseph — Missouri Water & Steam Supply Co.
St. Louis — Donley Pipe & Supply Co.
N. O. Nelson Co.
Springfield — John A. Rhodes Co.

MONTANA
Butte — Montana Hardware Company
Northwest States Supply Company
Missoula — Missoula Mercantile Company

NEBRASKA
Lincoln — Western Supply Company
Omaha — John Day Rubber & Supply Co.
Midco Supply Co.

NEVADA
Reno — Acme Supply & Equipment Co., Inc.

NEW HAMPSHIRE
Concord — Page Belting Co.
Keene — Perkins, Bassett & Wright, Inc.
Manchester — Manchester Supply Co., Inc.
Nashua — F. W. Webb, Inc.

NEW JERSEY
Atlantic City — Seashore Supply Company
Bayonne — Bayonne Plumbing Supply Co.
Bridgeton — Hajoca Corporation
Camden — Flack Company
Hajoca Corporation
J. D. Johnson Co., Inc.
Elizabeth — Elizabeth Hardware Company
Harrison — William S. Rae, Inc.
Irvington — Garweck Industrial Supplies
Jersey City — The Ideal Supply Co., Inc.
New Brunswick — Behrer-Nason Company, Inc.
Newark — Geo. J. Keller Co.
John Simmons Company
Passaic — Central Eng'ring & Supply Co., Inc.
A & J Friedman Supply
Paterson — Federal Supply Co.
Paterson Supply & Engineering Co.
Perth Amboy — Madson & Howell, Inc.
Trenton — Manufacturers Selling Company
Vineland — Endicott Supply Company

NEW YORK
Albany — Sager-Spuck Supply Co., Inc.
Binghamton — Binghamton Industrial Supply Co.
Chas. Millar & Son Co.
Ellis W. Morse & Co.
Sage Supply Co., Inc.
Bronx — H. Y. Plumbers' Specialties Co., Inc.
Standard Plumbing Supply Co.
Brooklyn — Asco Supply Company, Inc.
B. F. Gilmour Co., Inc.
E. L. Grayssons, Inc.
H. B. Kelly Company, Inc.
McElroevy & Hauck Co.
Saltser & Weinsier, Inc.
The Smyth-Donegan Company
John Wiffert Company
Buffalo — W. A. Case & Son Mfg., Co.
Stritt & Priebe, Inc.
Elmira — Irving D. Booth, Inc.
LeValley McLeod, Inc.
Ithaca — Haverstick & Co.
Jamestown — Clark Hardware Co.
Kingston — W. A. Case & Son Mfg. Co.
Long Island City — Boss Supply Company, Inc.
Conran Supply Co., Inc.
Gar Supply Corp.
Meyer-Maibin Company, Inc.
Massena — Hyde Plumbing Supply Corp.
Middletown — Orange County Plumbing Supply Co.
Mineola — Behrer-Nason Company, Inc.
Newburgh — W. A. Case & Son Mfg. Co.
W. L. Smith Co.
New York — Behrer-Nason Company
Davis & Warshaw, Inc.
Glauber, Inc.
Charles F. Guyon, Inc.
W. H. Hussey & Son, Inc.
Herbert Rock Supply Corporation
Sidney Samuels, Inc.
Smolke Co., Inc.
Niagara Falls — W. A. Case & Son Mfg. Company
Elderfield Hartshorn Hardware Co.
Haverstick & Co., Inc.
Ogdensburg — Utica Plumbing Supply Co., Inc.
Olean — LeValley McLeod, Inc.
Oswego — M. B. Crawford & Son
Port Chester — Central Plumbers Supply Co., Inc.
Poughkeepsie — Interstate Plumbing Supply Co., Inc.
J. D. Johnson Co., Inc.
Rochester — W. A. Case & Son Mfg. Co.
Haverstick & Co.
Samuel Sloan & Co.
Staten Island — Island Plumbing Supply Co., Inc.
Syracuse — Burns Bros. Mfg. Co., Inc.
Edward Joy Co.
Utica — Chas. Millar & Son Company
White Plains — Behrer-Nason Company, Inc.
Woodside — Neill Supply Co., Inc.
Yonkers — Groauber, Inc.
Joseph C. Ryan & Sons, Inc.

NORTH CAROLINA
Asheville — Hajoca Corporation
Charlotte — Grinnell Corp.
Hajoca Corporation
Textile Mill Supply Co.
The Henry Walke Company
Durham — Dillon Supply Co.
Noland Company, Inc.
Fayetteville — Piedmont Supply Co., Inc.
Standard Supply Co., Inc.
Gastonia — Gastonia Mill Supply Co.
Goldsboro — Dillon Supply Co.
Greensboro — Frank Hackett Supply Co.
Odell Mill Supply Co.
Piping & Equipment Supply Corp.
Hickory — Piedmont Supply Co., Inc.
High Point — Kester Machinery Co.
Raleigh — Dillon Supply Co.
Noland Company, Inc.
Rocky Mount — Dillon Supply Co.
Shelby — Shelby Supply Co.
Wilmington — Mill & Contractors Supply Co.
Winston-Salem — Kester Machinery Co.
Noland Company, Inc.

OHIO
Akron — Mahoning Valley Supply Company
Canton — Mahoning Valley Supply Company
Cincinnati — The Murdock Mfg. & Supply Co.
Cleveland — American Rad. & Std. Sanitary Corp.
Strong, Carlisle & Hammond Co.
Columbus — The Smith Bros. Hardware Company
Westwater Supply Company
Dayton — The Acme Plumbing Supply Co.
Lancaster — The Raedel Hardware Co.
Lima — American Rad. & Std. Sanitary Corp.
Mansfield — Conte Plumbing & Heating Sup., Inc.
Sandusky — Brahl & Appell Co.
Steubenville — Industrial Supplies Co.
Toledo — The Hardy & Dischinger Co.
Youngstown — Mahoning Valley Supply Company
Zanesville — Industrial Supplies Co.

OKLAHOMA
Oklahoma City — Mideke Supply Co.
Tulsa — Ardun Supply Company
Marshall Supply & Equipment Co.

OREGON
Astoria — Fisher Bros. Company
Eugene — American Steel & Supply Co.
J. E. Haseltine & Co.
Klamath Falls — Lorenz Company
Portland — Harris Supply Company
J. E. Haseltine & Co.
Salem — Salem Steel & Supply Co.

PENNSYLVANIA
Allentown — Lehigh Valley Supply Co.
Bethlehem — Hajoca Corporation
Chester — Hajoca Corporation
Easton — H. P. Kinsey Company
Erie — United Hardware & Supply Co.
Franklin — Jolley Industrial Supply Co.
Harrisburg — Appleby Bros. & Whittaker Co.
Haverford — Plumbers Supply Co., Inc.
Lancaster — Herr and Company, Inc.
Lansdale — Hajoca Corporation
Lansdowne — Hajoca Corporation
Norristown — Hajoca Corporation
United Pipe & Supply Co., Inc.
Oil City — United Hardware and Supply Co.
Philadelphia — Hajoca Corporation
Henry B. Pancoast Company
C. J. Reinoer & Co., Inc.
Pittsburgh — Pittsburgh Gage & Supply Co.
Pottsville — Reading Foundry & Supply Co.
Reading — Hajoca Corporation
Reading Heater & Supply Company
Scranton — Ralph E. Weeks Co.
Sharon — Pittsburgh Gage & Supply Co.
Titusville — United Hardware & Supply Co.
Wilkes-Barre — Eastern Pennsylvania Supply Co.
Williamsport — E. Keeler Company
York — Fulton, Mehring & Hauser Co., Inc.

RHODE ISLAND
Providence — Allen & Reed, Inc.
Grinnell Corporation
Rhode Island Supply & Eng'ring Co.
Woonsocket — Woonsocket Supply Co.

SOUTH CAROLINA
Anderson — Sullivan Hardware Co.
Charleston — Charleston Supply Co.
Clinton — Industrial Supply Co.
Columbia — Columbia Supply Co.
Noland Company, Inc.
Greenville — Poe Hardware & Supply Co.
Stewart Supply Co.
Sullivan Hardware Co.
Orangeburg — J. W. Smoak Hardware Co.
Spartanburg — Hall & Company
Noland Company, Inc.

TENNESSEE
Bristol — Mitchell-Powers Hardware Co.
Chattanooga — Mills & Lupton Supply Co.
Jackson — Southern Supply Co.
Kingsport — Greene Hardware & Supply Co.
Knoxville — Tennessee Mill & Mine Supply Co.
Memphis — N. O. Nelson Co.
Nashville — Buford Brothers, Inc.
W. A. Case & Son Mfg. Co.
Noland Company, Inc.

TEXAS
Austin — K & M Supply Company.
Dallas — N. O. Nelson Co.
El Paso — Zork Hardware Company
Fort Worth — Weil Machinery & Supply
Houston — Corbett Corp.
N. O. Nelson Co.
Marshall — E. B. Hayes Machinery Co.
Paris — Robert L. Swain Co.
San Antonio — San Antonio Pipe & Supply Co.
Texarkana — Buhrman-Pharr Hardware Co.

UTAH
Salt Lake City — N. O. Nelson Co.

VERMONT
Burlington — The Blodgett Supply Co., Inc.
Rutland — Conney-Plus, Inc.
Lincoln Iron Works, Inc.
St. Johnsbury — Charles Millar & Son Co.

VIRGINIA
Bassett — Blue Ridge Hardware & Supply Co.
Danville — Hajoca Corporation
Lynchburg — Barker-Jennings Corp.
Newport News — Noland Company, Inc.
Norfolk — Hajoca Corporation
The Henry Walke Company
Richmond — Hajoca Corporation
Industrial Supply Corporation
Noland Company, Inc.
Southern Railway Supply Co.
Roanoke — Noland Company, Inc.
Waynesboro — Mize Supply Company

WASHINGTON
Seattle — Northern Commercial Co.
Northwest Plumbing Supply Co.
Steam Supply & Rubber Co.
Spokane — Northwest States Supply Co.
Sullivan Valve & Engineering Co.
Tacoma — Paramount Supply Co.
Walla Walla — Drumheller Co.

WEST VIRGINIA
Charleston — McJunkin Corporation
Clarksburg — Osborn Machinery Co., Inc.
Huntington — Logan Hardware & Supply Co.
Weston — Danser Hardware & Supply Co.
Wheeling — Trimble & Lutz Supply Co.

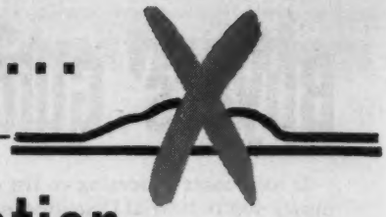
WISCONSIN
Appleton — W. S. Patterson Co.
Green Bay — Murphy Supply Co.
Kenosha — P. H & I Supply Co.
LaCrosse — W. A. Roosevelt Co.
Madison — Rundle Spence Mfg. Co.
Manitowoc — William Rathsack & Sons Co.
Milwaukee — F. R. Dengel Co.
B. Hoffmann Mfg. Co.,
Div. Grinnell Corp.
Rundle Spence Mfg. Co.
Nekoosa — Nekoosa Fdry. & Mchne. Works, Inc.
Oshkosh — Battis Bros.
Racine — Thomas Supply Co.
Sheboygan — Optenberg Iron Works
Watertown — Kusel Dairy Equipment Co.

LOOK FOR THE JENKINS DIAMOND

JENKINS VALVES

BRONZE - IRON - CAST STEEL - STAINLESS STEEL

Guard against blistering...

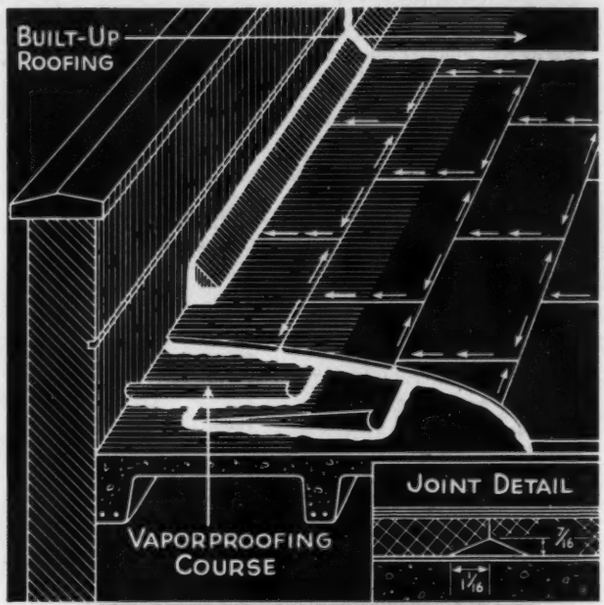


separation of felt and insulation

with new

CELOTEX Channel-Seal

ROOF INSULATION



EXCLUSIVE CHANNELING PRINCIPLE PROVIDES NEEDED PROTECTION!

Across the length and breadth of the roof it covers, new Celotex Channel-Seal Roof Insulation forms an actual *network* of interconnecting channels. These "escape routes" permit free circulation of air away from high-pressure air pockets beneath the roof surface. With this exclusive design, an extra margin of safety against costly roof damage is assured.

How "Safety Release" Works

Channels are formed by the bevels (7/16" high, 1 1/16" wide) on all bottom edges of units as they're laid on the deck. High-pressure areas, building up from rising surface temperatures, are relieved by air movement through the channels. These built-in safety releases equalize and reduce pressure, minimizing the danger of blistering and separation of felt from insulation. This is protection no ordinary roof insulation can match!

Celotex Channel-Seal Roof Insulation provides high insulating efficiency. It comes in a range of thicknesses to meet the specific insulation requirements of each job. Both sides, all edges are asphalt coated for extra moisture protection in storage and on the job.

Low-Cost, Easy to Apply

Light and easy to handle, yet remarkably rigid and tough, Channel-Seal is low in both initial and applied cost. Resists damage from job handling. Quick, simple to apply. Smooth surface assures positive bond to both roof deck and roofing felt.

Specify and insist on genuine Celotex Channel-Seal... the only roof insulation made of tougher, stronger, long Louisiana cane fibers—effectively protected by the Ferox® Process against dry rot and termite attack. Write now for full data on Channel-Seal and other types of job-proved Celotex Roof Insulation. Just address The Celotex Corporation, Dept. AR-94, 120 S. LaSalle St., Chicago 3, Ill.

For a better roof—specify genuine

CELOTEX
REG. U. S. PAT. OFF.
ROOF INSULATION

THE CELOTEX CORPORATION • 120 SOUTH LA SALLE STREET • CHICAGO 3, ILLINOIS

HOFFMAN "WATCHMAN" CONDENSATION PUMP

TYPE "WC-8-20" Specifications

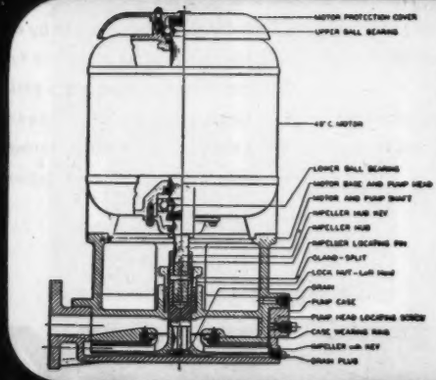
RATING: Up to 8000 Sq. ft. E.D.R.
PUMP CAPACITY: 12 Gals. per min.
PRESSURE: 20 lbs. per square inch at pump discharge
RECEIVER CAPACITY: 9 Gallons
MOTOR: ⅓ H.P., 3450 R.P.M. Single Phase, 60 cycle, 115 or 230 volts
SHIPPING WGT.: 180 pounds

FOR HIGH EFFICIENCY

24" FITS MINIMUM FLOOR SPACE

LOW OVER-ALL HEIGHT
16½" MOTOR HIGH ABOVE WATER & DIRT

6" LOW INLET

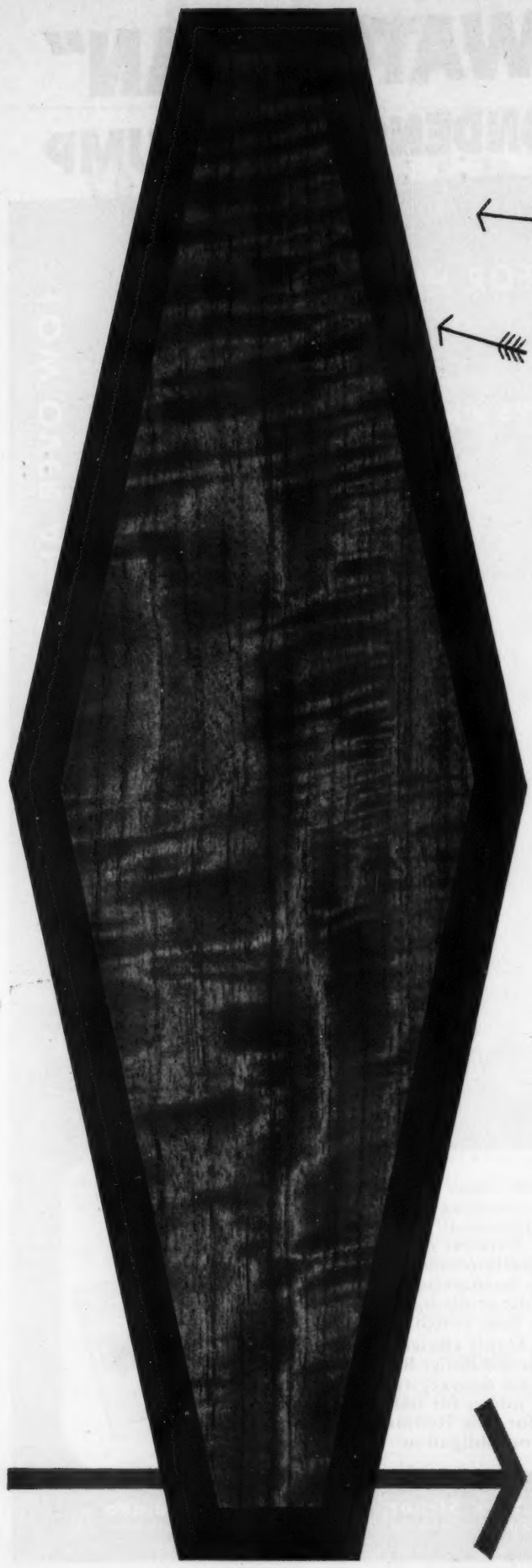


Here is a vertical, close coupled pump for low pressure heating systems, featuring: 1. One piece cast bronze centrifugal impeller dynamically balanced for smooth running and long life. 2. Receiver of heavy rust resistant cast iron. 3. All operating parts including motor and impeller assembly can be inspected or replaced without disturbing inlet or discharge piping. 4. Two pole heavy duty float switch easily adjusted.

This compact, highly efficient pump is ideal as a replacement for old Boiler Return Trap installations. Immediate delivery can be made from stock. Ask your jobber for full particulars with prices or write for new Hoffman Condensation Pump Catalog, no obligation.

HOFFMAN SPECIALTY MFG. CORP. • 1001 York Street, Indianapolis 7, Indiana

Makers of Valves, Traps, Hot Water Heating Systems, Vacuum and Condensation Pumps...Sold by Leading Wholesalers of Heating and Plumbing Equipment



Specify...

BURMA TEAK FLITCH 11-114

An example of fine rare teak veneers is seen by the Burma teak flitch grain on the left-hand side of this page. The Chester B. Stem world-wide buying organization has just shipped to us in New Albany, Indiana, some of the finest, most rare and exotic teak veneer we've ever seen.

None of these cross figures and grain features will ever again be duplicated by nature. We are making available for architectural use *only* Burma Teak Flitch 11-114 along with several other beautiful teak wood flitches for paneling.

Come to Chester B. Stem first, and you will be amazed at the large number and variety of Teak configurations for use by a most discriminating client. Also available are many other fine foreign and domestic wood grain patterns.

Send us approximate square footage and the length needed for paneling. We'll be glad to send samples of the actual veneer you can specify, or have a representative call.

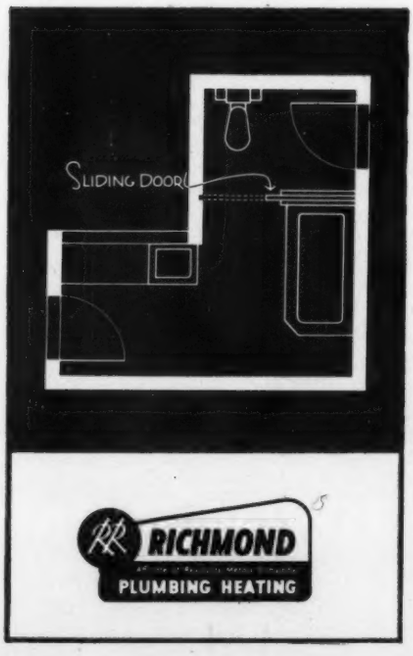
CHESTER B.

STEM

785 GRANT LINE ROAD, NEW ALBANY, IND.

Call Collect—New Albany 5-6646

New bathroom designs to help you sell...



Richmond fixtures for a contemporary theme!

Look at these modern features—the CLAREMONT toilet compartment with its space-saving, sliding-door partition and separate entrance behind the BLAKE corner tub; the generous sized cabinet with sliding mirrors over the vanity and graceful BROMLEY lavatory. Warm color tones lend a friendly atmosphere and *Whiter-White* Richmond fixtures, with their bright sparkle, add lively contrast. Decorator-designed by Richmond to help you sell baths for new homes and the rapidly growing modernization market.

Your customers will soon be seeing this new bathroom, the second of a series, in such leading national consumer magazines as BETTER HOMES & GARDENS. Illustrated in full color and described with stirring sales messages, this series will spark wide interest in bathroom design—vividly demonstrate the full beauty of Richmond ware—help build the consumer brand-acceptance you desire.

Whether you specify, sell or install plumbing fixtures, Richmond's national consumer advertising will help your selling job.

Richmond . . . the complete line of top quality lavatories, water closets and baths. Sold through selected wholesalers.

Richmond radiator company

16 Pearl Street, Metuchen, N. J. • Affiliate of Reynolds Metals Company

See other side for complete details on the new Richmond WFD Boiler

Make life simpler

ONE boiler for ALL your gas-fired, wet heat needs The NEW WFD-Series F

Here's great news for the whole building team—plumbing wholesaler, contractor, builder, architect—Richmond's WFD Series F Boiler. Just *one* thoroughly reliable unit, for either hot water or steam, in eight different capacities—from 80,000 to 290,000 input Btu/hr.

The WFD is easy to install and easy to service—its top cleanout makes flue cleaning a quick, easy operation—particularly in confined spaces. WFD simplifies your specification, ordering and inventory. With a WFD and 2 sets of trim, you have a hot water boiler *or* a steam boiler.

In short, here is a wet base, cast iron boiler, engineered for dependable, fully automatic operation. Supplied with control groups for all types of gases, the WFD Series F is A.G.A. Approved, meets S.U.R. Standards, A.S.M.E. Standards. It's good-looking—and it will keep its good looks; the steel jacket is "Duridized"* which provides a superior bond for the white enamel finish—protects the steel against rust or corrosion.

For further information send off the coupon today—find out about this new gas-fired boiler—the Richmond WFD Series F. Distributed through selected wholesalers.

**Duridine—American Chemical Paint Co.*

Richmond Radiator Company
16 Pearl Street,
Metuchen, New Jersey

Please send me more information on the new WFD Series F Boiler. No obligation, of course.

*Name*_____

*Company*_____

*Address*_____

*City*_____ *Zone*_____ *State*_____

We are ☐ plumbing contractors, ☐ plumbing wholesalers, ☐ builders, ☐ architects.

check these features:

- ☐ Cast iron, wet base—A.G.A. Approved for combustible floor installation.
- ☐ Available with tankless domestic heater for instantaneous hot water—3 or 5 gallons per minute capacities.
- ☐ Fully automatic—all controls and tankless water heater completely enclosed.
- ☐ "Duridized" for protection against rust or corrosion. Provides firm bond for white enamel on steel jacket.
- ☐ Deluxe appearance complements the finished basement or utility room.

RICHMOND PLUMBING HEATING

Richmond radiator company

Metuchen, New Jersey
Affiliate of Reynolds Metals Company

FOR NEW AND OUTSTANDING **SCHOOL BUILDINGS,** ARCHITECTS PREFER

aluminum WINDOWS *by* GENERAL BRONZE

QUALITY APPROVED

A.W.M.A. Quality Specifications—Materials, Construction, Strength of sections and Air infiltration requirements—confirmed by Pittsburgh Testing Laboratory.

Member—Aluminum Window Manufacturers Association

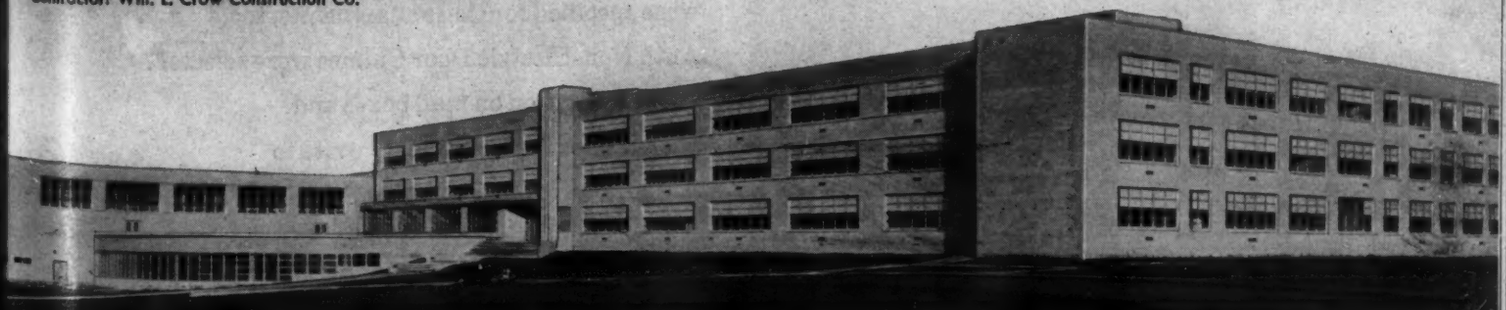
● The school building of today with all its many new and modern facilities is a far cry from the little red school house of a few years ago. Just consider its windows for example. Today's modern, easy-operating, weathertight aluminum windows are vastly superior in every way to the old-fashioned, hard-to-open windows that always needed painting and maintenance expenses.

Yes, today, architects as well as school authorities are concerned with more than just mere windows. They demand *all* the requirements of good fenestration—maximum light, controlled ventilation, weathertightness, easy operation, permanent beauty and low maintenance costs for the entire life of the building. That's why so many new schools are being built with "Windows by GENERAL BRONZE."

Whether you are planning school buildings, hospitals, apartments, commercial or monumental buildings, General Bronze, the world's largest fabricator of aluminum windows, offers you the benefit of more than 40 years' practical experience in solving your problems as they pertain to windows, spandrels, curtain walls and architectural metalwork. Our reputation for quality products, for sound engineering and design, for precision workmanship is known and accepted from coast to coast.

Because of our unequalled facilities and our vast experience, we are well qualified to serve you, especially when your requirements are complex or unusual. We will be glad to discuss your problems with you at any time. Our catalogs are filed in Sweet's.

TROY HIGH SCHOOL
Architect: Frank J. Morgan
Contractor: Wm. L. Crow Construction Co.



GENERAL BRONZE CORPORATION

GENERAL BRONZE CORPORATION • GARDEN CITY, N. Y.

PERMATITE DIVISION—Custom-built Windows, Architectural Metal Work and Revolving Doors. ALWINTITE DIVISION—Stock-size Aluminum Windows
BRACH MFG. CO. DIVISION—Multel, T. V., Radio and Electronic Equipment. STEEL WELDMENTS, INC. DIVISION—Custom fabrication in steel and iron.

. . . and for the

NEW YORK CITY HOUSING AUTHORITY

over 97% of all the U. S. Approved
Mail Boxes and Non-Electric Door Chimes
were made by

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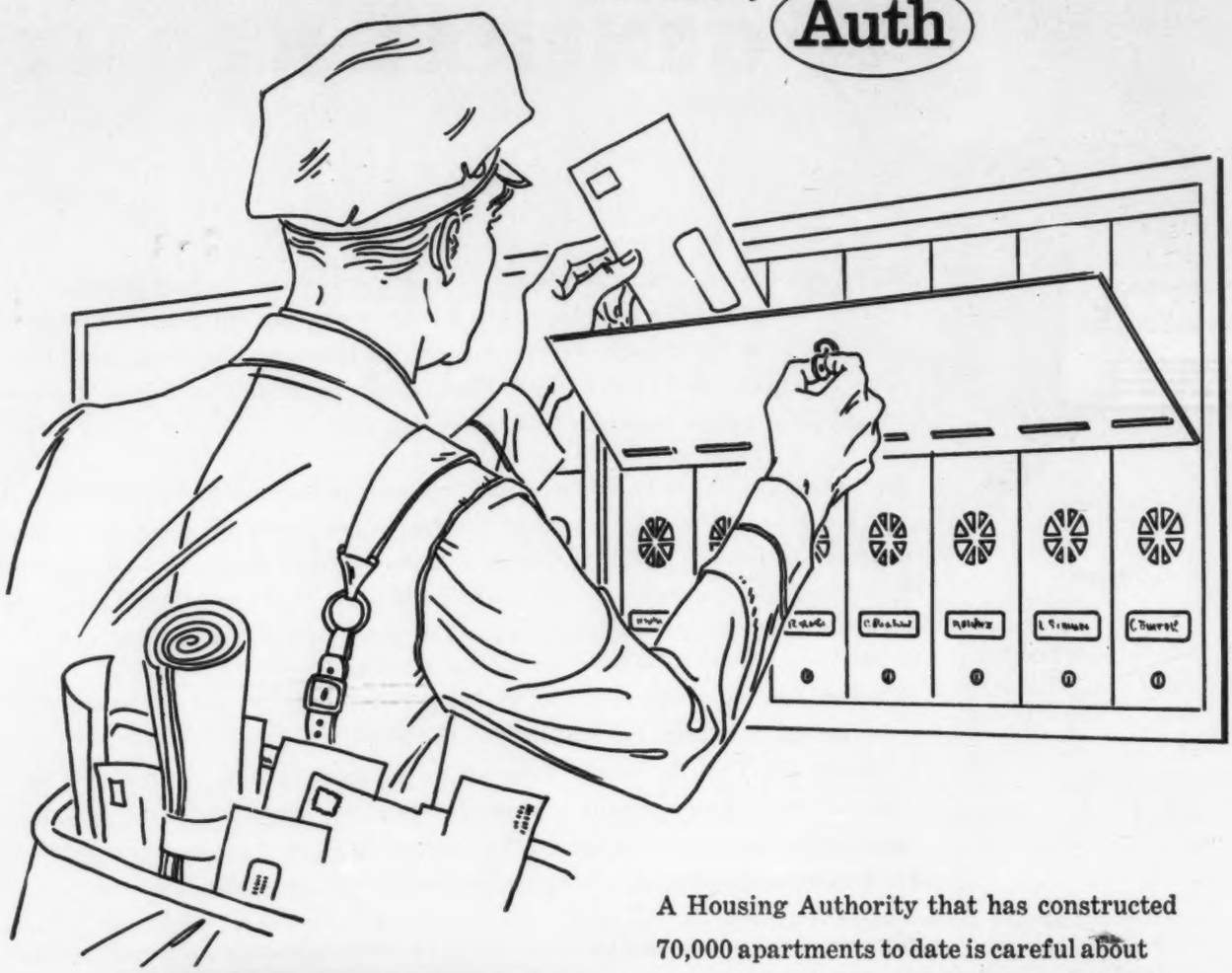

A Housing Authority that has constructed 70,000 apartments to date is careful about the quality of the equipment it specifies and approves. That is why we take pride in having supplied over 68,000 of this total with Auth Mail Boxes. Whenever door chime signals were specified for these apartments, too, Auth Non-Electric Door Chimes were selected. For information on mail boxes and door chimes for apartments write to *Auth Electric Company, Inc., Long Island City 1, New York.*

SIGNALING, TIME AND COMMUNICATION SYSTEMS FOR HOSPITALS, SCHOOLS, HOUSING, INDUSTRY AND SHIPS

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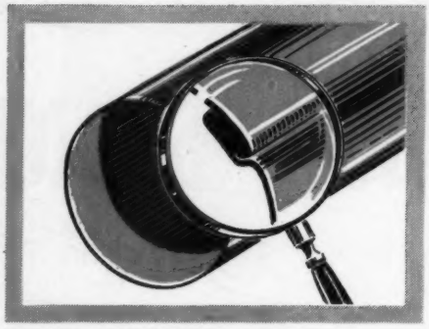
Chase®

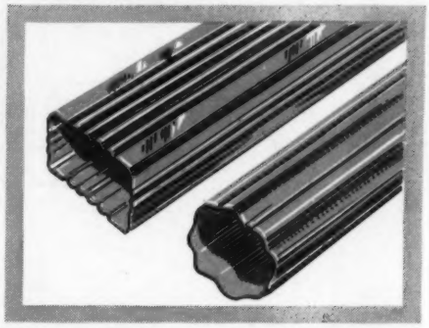
gives you 7 reasons why copper means a better home!

It won't rust and resists corrosion—**Copper's** resistance to the elements is traditional—even in areas where atmospheric conditions destroy other metals. Its performance is proved over centuries of experience.

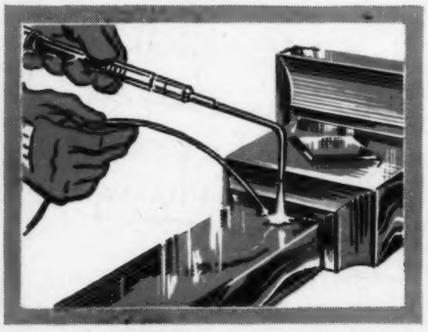
It's full weight—Look for the die-stamped Chase Trade Mark and Weight Stamp—your assurance that Chase **Copper** Roofing Products have stability and permanence.



Seams are adequate—Chase **Copper** Leaders are formed from full-width strips, to assure strong, expansion-proof seams.

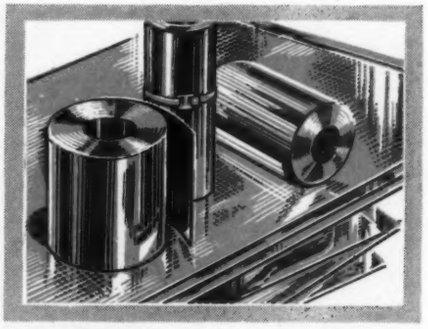


Corrugations are deep and generous—Chase **Copper** Downspouts have full-depth corrugations, ample for temperature ranges in *any* climate.



It can be soldered . . . with ease and economy—Long-lasting, water-tight joints are assured when standard soldering techniques are applied to Chase **Copper** Roofing Products.

It's architecturally harmonious—Modern or traditional design both benefit from **Copper's** rich appearance—a metal protected and beautified by nature itself.



It's economical—The ratio of *first-cost* to *years of service* is at a bare minimum, when **Copper** is used. And, the relationship of copper to overall building costs is as reasonable as it ever was in the past.

Chase

BRASS & COPPER CO.

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

For maximum life and performance, install Chase full weight copper leaders, gutters and roofing accessories.

The Nation's Headquarters for Brass & Copper

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SPECIFICATION NOTES

Re: Faulty Cylindrical Lockset Operation

Inaccuracy in boring causes faulty operation

LOCKWOOD's got the answer!

SPEEDRIL bores holes accurately and easily. LOCKWOOD quality locksets installed with SPEEDRIL make perfect functioning a sure thing!

Give builders the word about NEW LOCKWOOD Speedril

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The mark of superior performance

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for 87 years, supreme quality

- GLAZING COMPOUNDS
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Specify D-P with complete confidence

See Sweets Architectural File, 6C/Di for complete Dicks-Pontius product descriptions and specifications—or write direct for your personal copy of our catalog.

The Dicks-Pontius Company • Dayton, Ohio
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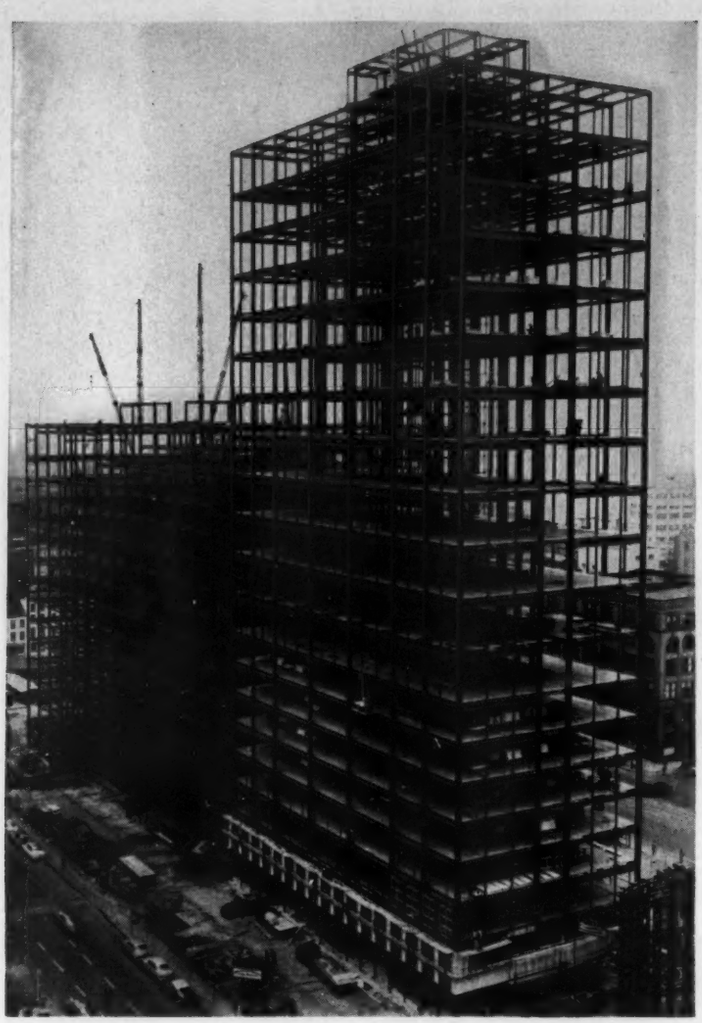
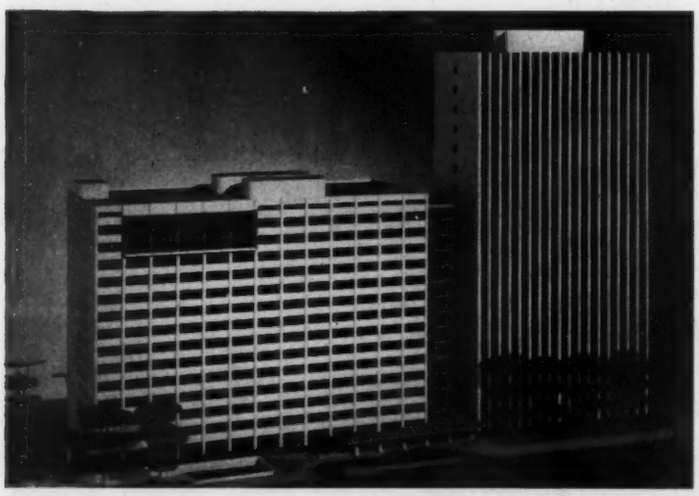


An important step in Detroit's broad civic-development program, this $26-million structure will house 36 courts in the 20-story Courts Unit, will furnish 28,820 square feet of floor space in the 14-story Office Unit. *Owner:* Detroit-Wayne (County) Joint Building Authority. *Architects and Engineers:* Harley, Ellington and Day, Inc. *General Contractor:* Bryant & Detwiler Co. *Steel Fabrication and Erection:* Bethlehem Steel Co.



Model of the two units, joined by a 14-story, 38 x 40-ft glassed-in link, which will furnish space for 4,000 municipal and county workers. The building is located between Woodward, Larned, Randolph and Jefferson Avenues, in downtown Detroit.

Steel for Detroit's City-County Building Erected in 5½ Months

The people of Detroit are going to have their attractive new City-County Building a lot sooner than they expected, thanks to a fast job of steel erection.

A number of unusual engineering problems were involved in erecting the 8,200 tons of structural steel. For instance, the plans called for three-story tiers and columns which take considerable time to erect. Another difficulty was the complete absence of storage space at the mid-city site. Furthermore, the use of crawler cranes was complicated by congested basement areas, as well as underground piping, caisson foundations and elevator-pit openings.

Bethlehem engineers devised various measures to cope with these problems. The two units were erected separately, with closely-coordinated use of three big guy derricks. To compensate for the absence of storage space, Bethlehem set up storage yards a mile from the erection site. The steel was trucked directly to the derricks, right over shored sections of the basement area. Excessive congestion on the floor area around the derricks due to the three-story tiers was avoided by providing additional installments of columns and spandrel beams. These were then erected before any interior beams were brought to the floor.

Thanks to careful planning—and with an assist from favorable weather—the steelwork was completed in just 5½ months, far ahead of schedule.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

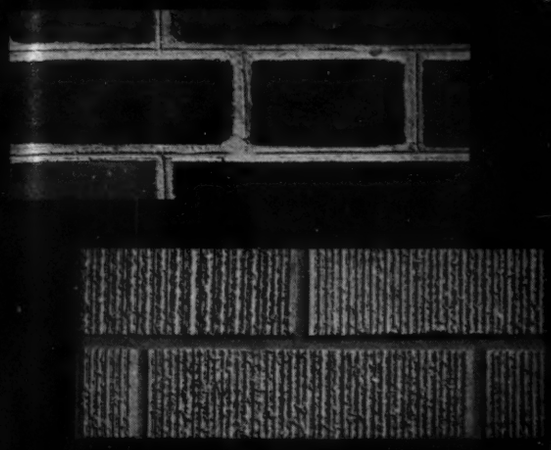
BRICK and TILE

. . . your most flexible, economical medium for

texture

and

color



More than any other single building material, brick and tile help the architect to achieve that perfect blend of structure, form and finish that marks a good building. Because brick and tile offer such variety of color and texture, the designer's opportunity for expression is almost unlimited. Brick and tile also mean true economy—low initial costs plus the long-range savings of permanence and freedom from maintenance.

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STRUCTURAL · CLAY · PRODUCTS · INSTITUTE

STRUCTURAL CLAY PRODUCTS INSTITUTE
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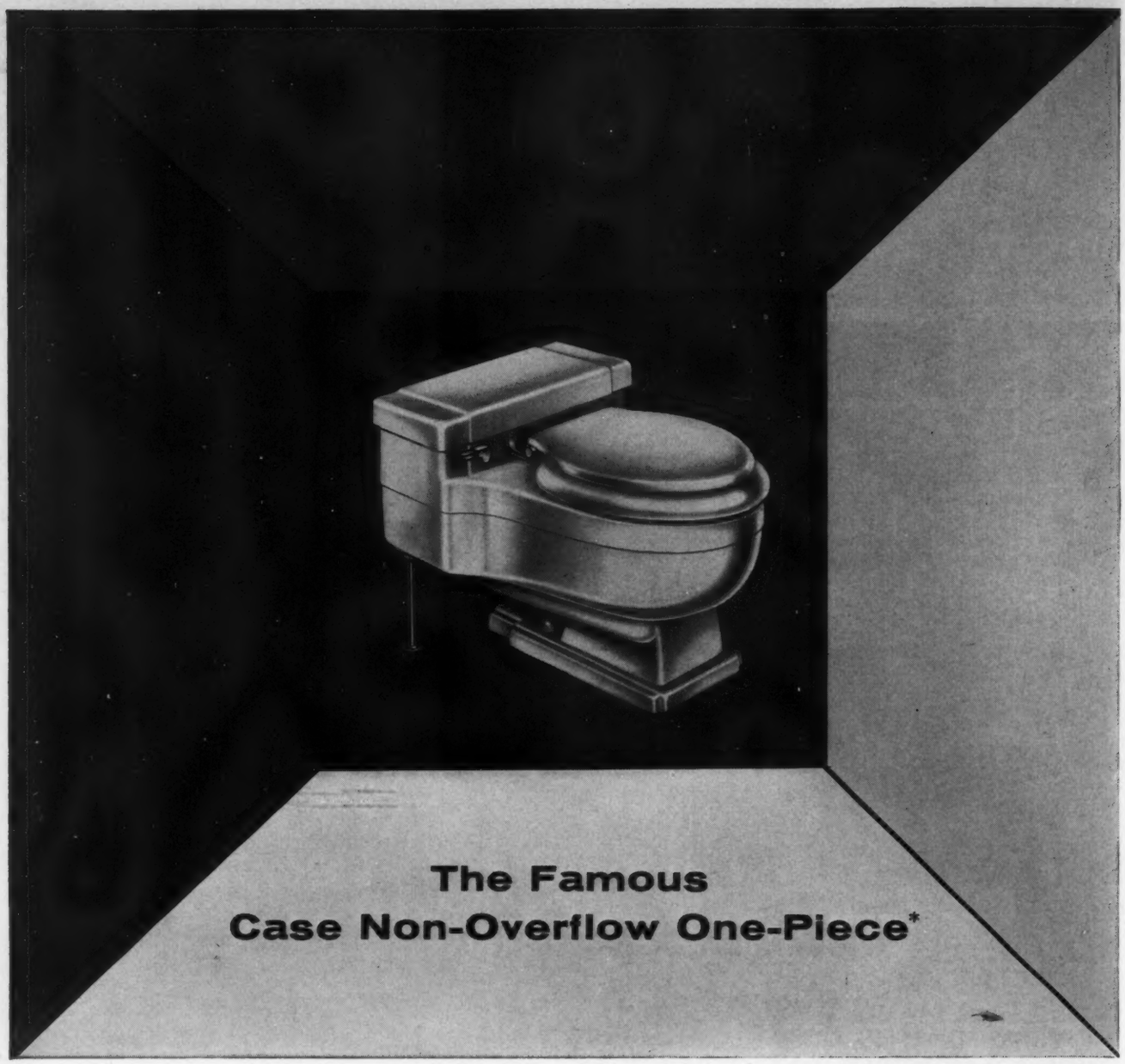


The
Water Closet
with the
WHISPERING
FLUSH

The first and finest one-piece water closet. When children play or accidents happen, the bowl of the CASE® One-Piece* will *not* overflow. Its "whispering flush" is another feature appreciated everywhere. Other features include atmospheric venting, ball-cock not in contact with tank water, volume regulating stop and device, large water area, and powerful centrifugal rim flush. Shelf type cover. In 32 colors and white. With regular bowl—Style 1000; with elongated bowl—Style 1100.

Complete fixture packed in one crate with special seat, china bolt caps and closet screws, and chrome plated supply pipe.

Available from leading distributors, (consult the "Yellow Pages") or write W. A. Case & Son Mfg. Co., 33 Main Street, Buffalo 3, New York.

1853-1954
Our 101st Year

Case®

Fine Plumbing Fixtures for every type of installation

*PATENTED

SEE RUST-OLEUM APPLIED DIRECTLY OVER SOUND RUSTED SURFACES! MAKE THIS TEST UNDER YOUR OWN CONDITIONS AND SEE PROOF OF PERFORMANCE!

See Rust-Oleum 769 Damp-Proof Red Primer actually applied over a badly rusted surface after simple scraping and wire-brushing to remove rust scale and loose rust in the Rust-Oleum *"rusted panel demonstration."* Rust-Oleum's specially-processed fish oil vehicle *penetrates* rust to bare metal usually eliminating sandblasting and other costly surface preparations.

Rust-Oleum finish coatings in Aluminum, Green, White, Gray, Yellow, Black, Orange, Blue and others provide both *Rust Prevention* and *Decorative Beauty!* Specify Rust-Oleum for new construction, maintenance, and re-modeling. See Sweets for complete catalog and nearest Rust-Oleum Industrial Distributor, or attach coupon to your business letterhead.

See local classified telephone directory under Rust Preventives or Paints for nearest Rust-Oleum Industrial Distributor.

RUST-OLEUM®

STOPS RUST!

There Is Only One Rust-Oleum. It Is Distinctive as Your Own Fingerprint. Resists Rain, Sun, Fumes, Snow, Heat, Salt Air, Salt Water, etc.

ATTACH TO YOUR LETTERHEAD — MAIL TO
THE RUST-OLEUM CORPORATION
2502 OAKTON ST., EVANSTON, ILLINOIS

I want to know more about RUST-OLEUM. Send me without obligation a FREE sample. I intend to test it ☐ indoors; ☐ outdoors; on ☐ wood; ☐ rusted metal; ☐ clean metal; ☐ brick; ☐ concrete; ☐ stucco;

(State on the above line object or structure such as tractor, tank, fence, metal sash, roof, floors, walls, etc.)

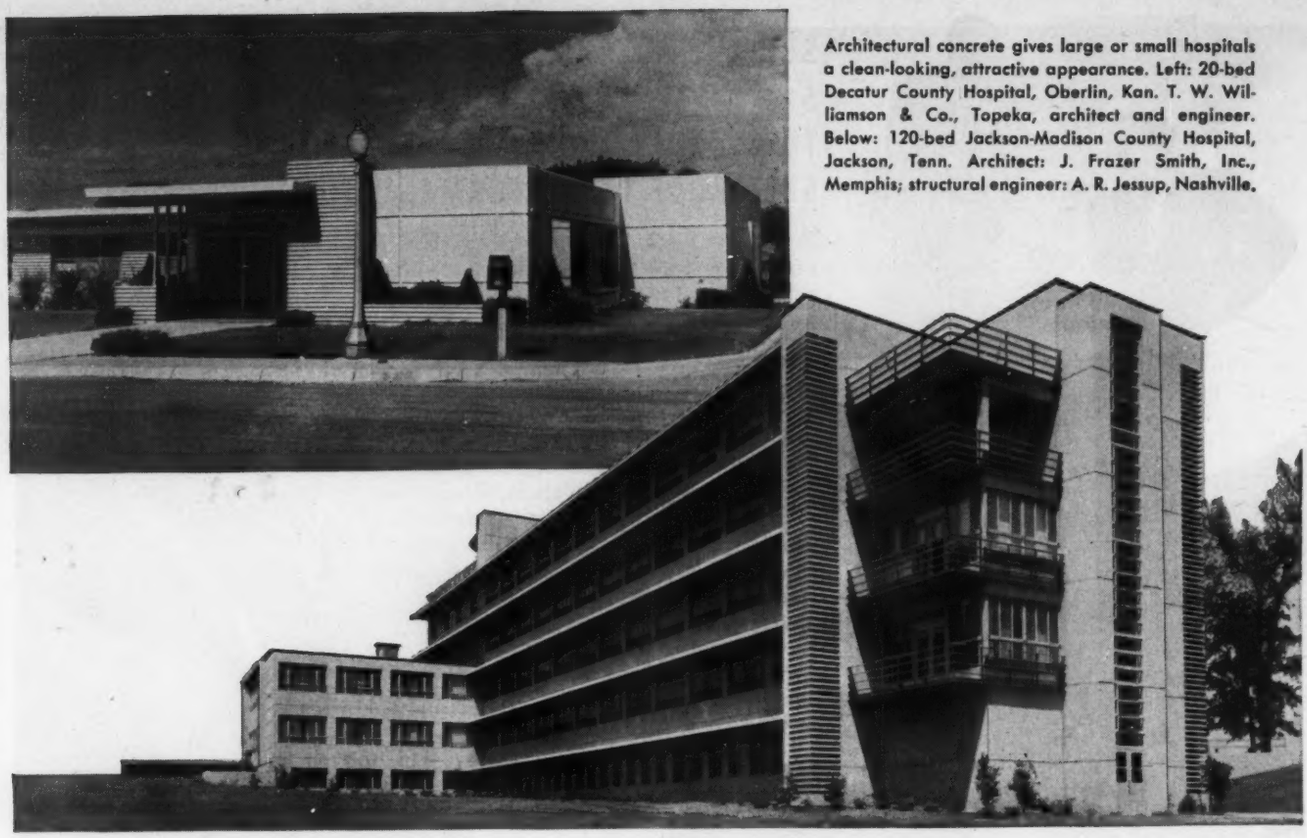
Subject to special conditions: ☐ weather; ☐ humidity; ☐ fumes; ☐ brine; ☐ dampness.

☐ I have a chain-link fence. Please send full information on RUST-OLEUM's new Roller Method that cuts re-coating costs.

☐ Send Complete Catalog with Color Guide — Please be sure to Indicate Color Preference Here

☐ Have Qualified Representative Call _____

NOTE: We want to supply you with the correct sample for your test. Please be sure to check off all appropriate information about your problem.



Architectural concrete gives large or small hospitals a clean-looking, attractive appearance. Left: 20-bed Decatur County Hospital, Oberlin, Kan. T. W. Williamson & Co., Topeka, architect and engineer. Below: 120-bed Jackson-Madison County Hospital, Jackson, Tenn. Architect: J. Frazer Smith, Inc., Memphis; structural engineer: A. R. Jessup, Nashville.

BETTER HOSPITALS

are built with CONCRETE

Concrete frames and floors ensure structural strength of McNeal Memorial Hospital addition for nurses' residence in Berwyn, Ill. Architects and engineers were Burnham and Hammond, Chicago.

More and more modern hospitals are being built better with concrete. Hospital planners have found that architectural and structural concrete and concrete masonry can help them achieve the maximum in rugged strength and durability, attractiveness and overall economy.

In architectural concrete, the broad versatility of concrete construction is especially apparent. Walls serve as structural members, and at the same time lend themselves to almost unlimited variation in exterior treatment and ornamentation. Such effects can be cast integrally with the walls.

For typical examples and design details, write for the free booklet, *"Concrete for Hospitals."* It is distributed only in the U.S. and Canada.

PORTLAND CEMENT ASSOCIATION
Dept. 9-8, 33 West Grand Avenue, Chicago 10, Illinois
A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

Right: utility and restful charm can be achieved with concrete masonry interiors, as in the laboratory and reception room of the Phillip Fife Medical Building, Guthrie, Okla. W. H. Schumacher, Oklahoma City, was architect and engineer.

another
Outstanding Apartment Building
chooses **TEMPERATURE CONTROL**
by
JOHNSON

Walter Bragg Smith Apartments, Montgomery, Alabama. Sherlock, Smith & Adams, architects and mechanical engineers; Boddie & Johnson, Inc., heating and air conditioning contractors; all of Montgomery.

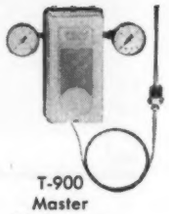
The modern Walter Bragg Smith apartment building has among its many desirable features year 'round air conditioning to provide all-weather comfort in each apartment.

Here is gracious living at its comfortable best! Weather is forgotten in the enjoyment of the refreshing, even temperatures that prevail throughout the building.

Behind the scenes, efficient Johnson Master-Submaster Control operates Johnson Valves and Damper Operators on the primary air system which supplies the individual room units in each apartment. With Johnson Control in command of the air conditioning equipment, indoor comfort remains the same *all the time.* And it's all done effortlessly—*automatically.*

For over 70 years, Johnson engineers have cooperated with building owners, engineers, architects and contractors in planning, manufacturing, installing and servicing of complete automatic control systems. With Johnson, all responsibility is centered in *one* highly specialized organization—the *only* way to insure the most efficient control installation for every type of building.

Ask a nearby Johnson engineer to make a survey of your problem. He will give you his recommendations without obligation. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.



T-900
Master
Thermostat

D-251
Piston Damper
Operator

T-901
Submaster
Thermostat

V-107
Three-Way
Mixing Valve

JOHNSON CONTROL

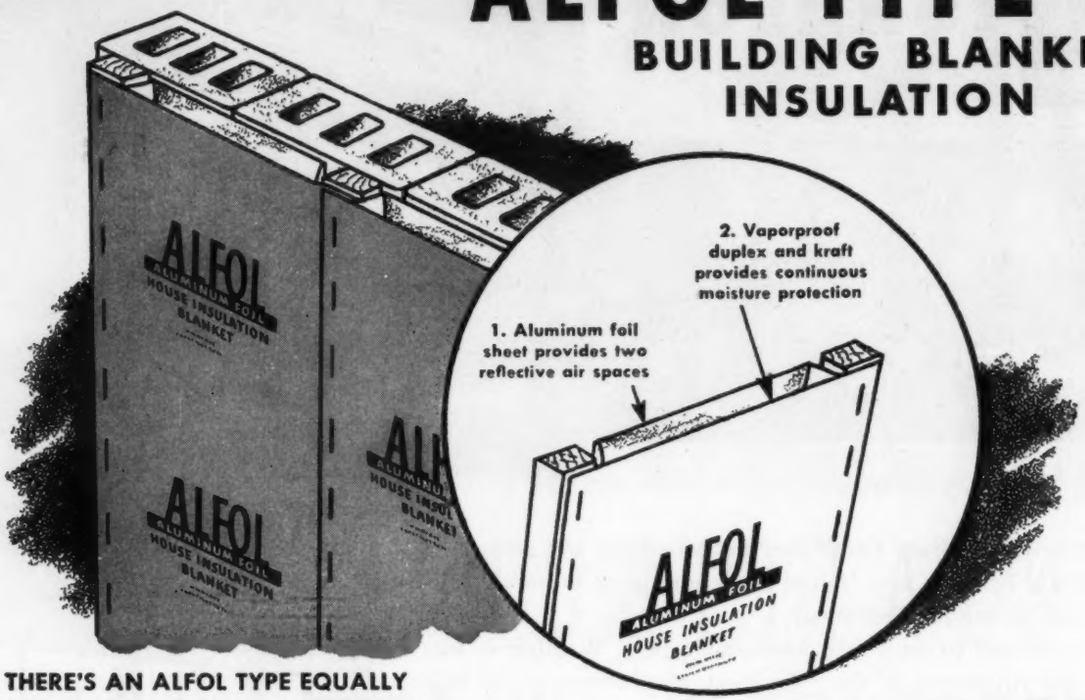
TEMPERATURE ↕ AIR CONDITIONING

MANUFACTURING • PLANNING • INSTALLING • SINCE 1885

Over an inch of Insulating Efficiency plus a positive vapor barrier—all in the 7/8 inch space of a furred out Masonry Wall!

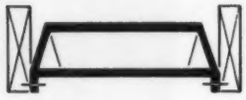
ALFOL TYPE 1A

BUILDING BLANKET INSULATION


ALFOL
ALUMINUM FOIL
HOUSE INSULATION
BLANKET
2. Vaporproof duplex and kraft provides continuous moisture protection
1. Aluminum foil sheet provides two reflective air spaces

THERE'S AN ALFOL TYPE EQUALLY EFFICIENT FOR EVERY INSULATION NEED

ALFOL Type IV—Four reflective air spaces for the utmost in thermal efficiency.



ALFOL Type III—Three reflective air spaces—ideal for crawl spaces, unfinished ceilings.

ALFOL Type II—Three reflective air spaces—designed to be applied across stud *faces*.

ALFOL Type I—Two reflective air spaces—in mild climates at lowest cost and top efficiency.

Alfol Type 1A Insulation is specially made for standard masonry construction. It is the only insulation that provides over an inch of insulation value plus a positive, continuous vapor barrier in the usual 7/8" clearance available in 1" x 2" furred masonry walls. Refurring expense is eliminated!

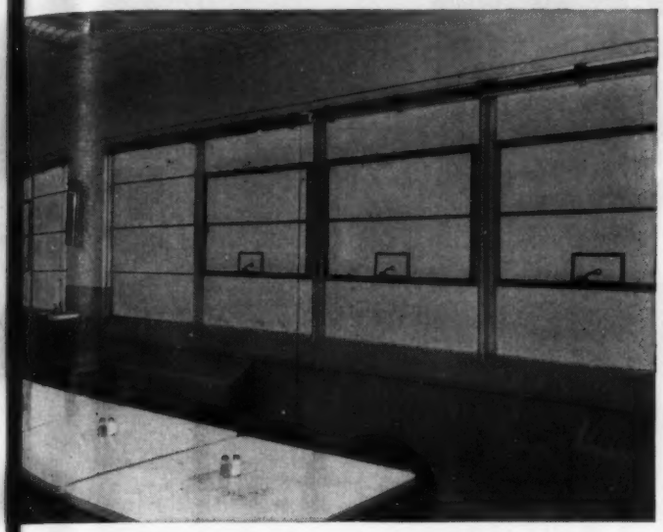
Type 1A has proved effective in hundreds of installations in every section of the country. When applied the pure aluminum foil automatically "pops out" to form two reflective air spaces equal in thermal value to more than an inch of insulation. The heavy vaporproof duplex and kraft backing by which Alfol is applied across the face of the furring assures a positive, continuous vapor barrier.

Write for free literature and complete details — Address Dept. AR-1

ALFOL
BUILDING BLANKET INSULATION
"FIRST IN REFLECTIVE INSULATION"

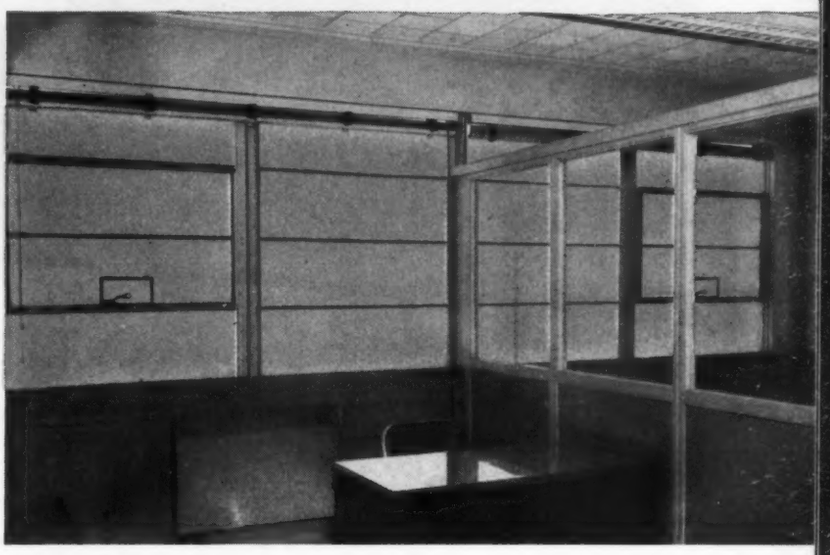
REFLECTAL CORPORATION
A Subsidiary of Borg-Warner
310 So. MICH. AVE. CHICAGO 4, ILL.

A cooler kitchen to work in. Cafeteria employes, like shop or office workers, can work better on a hot day when it's cooler inside. *Aklo* Glass can shut out as much as 44% of the sun's heat.



More and better work can result from a more relaxing lunch hour in this cafeteria glazed with Frosted *Aklo* Glass to diminish glare and keep the room cooler. *Colonial Stores, Raleigh, N. C. Architect: W. G. Bursnall, Atlanta.*

More comfort for office personnel. This Frosted *Aklo* Glass keeps a substantial portion of the solar heat from entering. Sun glare is diffused for eye comfort, too.



How to design daylighting for comfort

The problem: To bring plenty of daylight with a minimum of sun heat and glare into this cafeteria for employes in Raleigh, N. C.

The solution: Blue Ridge Frosted *Aklo** 1/4" Glass was used in all windows exposed to the sun's rays.

The result: A flood of daylight out of which the harsh rays and excessive heat had been filtered.

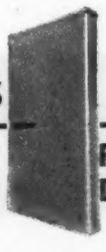
Frosted *Aklo* Glass 1/4" thick shuts out as much as 44% of the sun's heat. That's why its use is especially desirable in air-conditioned buildings. Heat that doesn't get in doesn't have to be driven out. That means lower operating costs.

Frosted *Aklo* Glass subdues and diffuses direct sunlight and sky brightness. Thus it provides eye comfort in work and recreation areas. Its use grows by millions of square feet every year.

See *AKLO'S* Advantages in Heat-in-Motion Test!

Here is a simple test that quickly shows you the benefits of *Aklo* Glass. See this radiometer demonstration right at your desk. Call your L·O·F Distributor or Dealer listed in phone book yellow pages under "Glass". Or write directly to Dept. B1594, Libbey·Owens·Ford Glass Co., 608 Madison Avenue, Toledo 3, Ohio. The booklet, "Filtered Daylight", is yours for the asking, too. *®

BLUE RIDGE
AKLO GLASS



FILTERS DAYLIGHT

Ultra-Modern Design

Administration and Research Center
S. C. Johnson & Son, Inc., Racine, Wis.
Architect: Frank Lloyd Wright
Consulting Mechanical Engineers:
Samuel R. Lewis & Associates

...fired by **coal**

In the famous plant of Johnson's Wax, modern equipment makes coal a clean and automatic fuel . . . and saves dollars year after year.

Says: Adrian Wilson, Power Plant Assistant Manager
S. C. Johnson & Son, Inc.
Racine, Wisconsin

"Our plant uses an average of 900 tons of coal per month. At the conclusion of a recent analysis of relative fuel costs, we were unable to justify a change from coal to any other fuel. In burning coal the modern way, we have steadily improved the efficiency of our power plant."

•

If you plan to modernize—or to build a new plant, be sure to investigate the convenience and money-saving advantages of coal when burned with modern equipment.

You can enjoy automatic operation and save on labor by installing up-to-date coal-feeding and ash-handling systems. And you can eliminate dust or smoke nuisances with such devices as dust collectors and cinder rejectors. Often such equipment can pay for itself in fuel and labor savings in only a few short years.

Get the advice of a consulting engineer. He can make a fuel analysis for you. He can advise you on what equipment can best fill your specific needs and return you a big saving year after year with coal.

YOUR BEST BUY IS BITUMINOUS

- **Today's lowest-cost fuel,** in most places, is Bituminous Coal!
- **The most stable fuel in price is coal,** because coal reserves are virtually inexhaustible . . . coal mining is highly mechanized.
- **The safest fuel to store and use** is coal.
- **Your best bet for saving dollars is coal** . . . for modern equipment greatly multiplies coal's inherent advantages.

Additional case histories, showing how other types of plants have modernized and saved money by burning coal with modern equipment, are available upon request.

BITUMINOUS COAL INSTITUTE
A Department of National Coal Association
Southern Building, Washington 5, D. C.

FOR HIGH EFFICIENCY FOR LOW COST

YOU CAN COUNT ON COAL!

Efficiency, safety, dependability, long-lasting and trouble-free service are cardinal virtues of standardized (FA) switchboards.

The reason is that they embody all the latest features in design and operation.

Approved by the Underwriters' Laboratories, Inc., for label service, standardized (FA) switchboards are built of standardized pre-assembled units, incorporated in standardized enclosures.

All switchboards are factory assembled and shipped ready for connection to main and branch circuit cables. Sections are so designed that they can be used singly or grouped. Removable end walls permit the addition of sections on either side.

Include these safe and efficient switchboards in all your specifications for new or modernized buildings.

Your nearest (FA) representative, listed in Sweet's Architectural catalogue will be glad to give you complete information about them.

THREE TYPES FROM WHICH TO CHOOSE

(FA) shutlbrak

a safety type switchboard designed for frequent and heavy use.

CAPACITIES:

30 to 1200 amps., 250 volts AC or DC and 600 volts AC 2, 3 and 4 poles. Rotary type operating handles furnished on 30-200 amp. capacities. Straight handles on all others.

(FA) klampswitchfuz and snufarc

a combination disconnect switch and fuse device.

CAPACITIES:

(FA) Klampswitchfuz, 30 to 600 amps., 250 volts AC or DC, 2, 3 and 4 poles, single or double throw.

(FA) Snufarc, 30 to 200 amps., 600 volts AC 2, 3 and 4 poles.

(FA) circuit breaker

a safety type switchboard with thermal-magnetic type circuit breakers.

CAPACITIES:

15 to 600 amps., 250 volts AC or DC and 600 volts AC, 2 and 3 poles. (Air circuit breakers are used for larger capacities.)

Frank Adam Electric Co.

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makers of:
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OUTSTANDING APPEARANCE, EXCEPTIONAL FIRE RESISTANCE—

BUILDERS GET BOTH WITH VERSATILE

FIRESTOP BESTWALL®

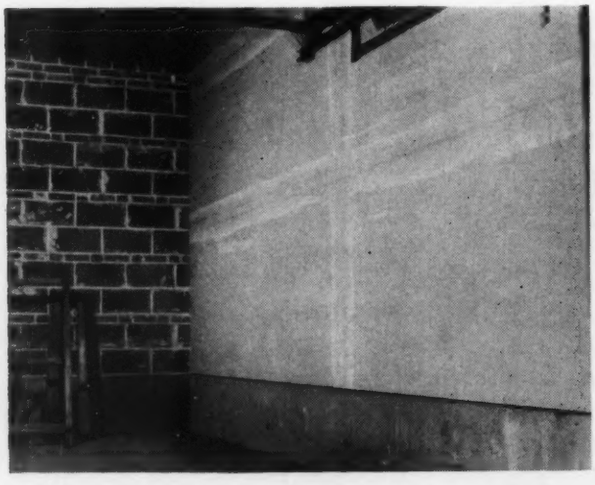
Whether for small homes developments, or in exclusive, high-rental apartments, Certain-teed's versatile Firestop Bestwall Gypsum Wallboard means sound construction, handsome appearance and exceptional fire resistance.

Firestop Bestwall was the first gypsum wallboard to give one-hour fire resistance in single-layer, 5/8-in. thickness over both wood and steel framing. It's still way ahead. For complete information on Firestop Bestwall, write Certain-teed today.

Used for Fire Protection (One hour over wood framing) in This 1500-Unit Housing Development

Schuermann Building & Realty Co. Project, St. Louis, Mo.

Here a barren field yields a crop of 1500 new homes. For greater safety, Certain-teed's Firestop Bestwall (250,000 sq. ft.) was used as shown on walls between garages and living quarters. Typical of the way progressive builders are using Firestop to meet Code requirements.



Used for Fire Protection (One hour over metal framing) in These Exclusive Apartments

Ambassador Apts., Shaker Heights, Cleveland, Ohio
Builder: Charles Bernstein; Wallboard Applicator: Allen O. Brooks Construction Co.

In this luxurious, high-rental apartment building, Certain-teed's Firestop was used exclusively for walls and ceilings. Firestop Bestwall comes with a smooth surface which can be painted, papered or decorated. It is strong, light—won't warp or buckle in place—stands normal settling without cracking.

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Quality made Certain . . . Satisfaction Guaranteed

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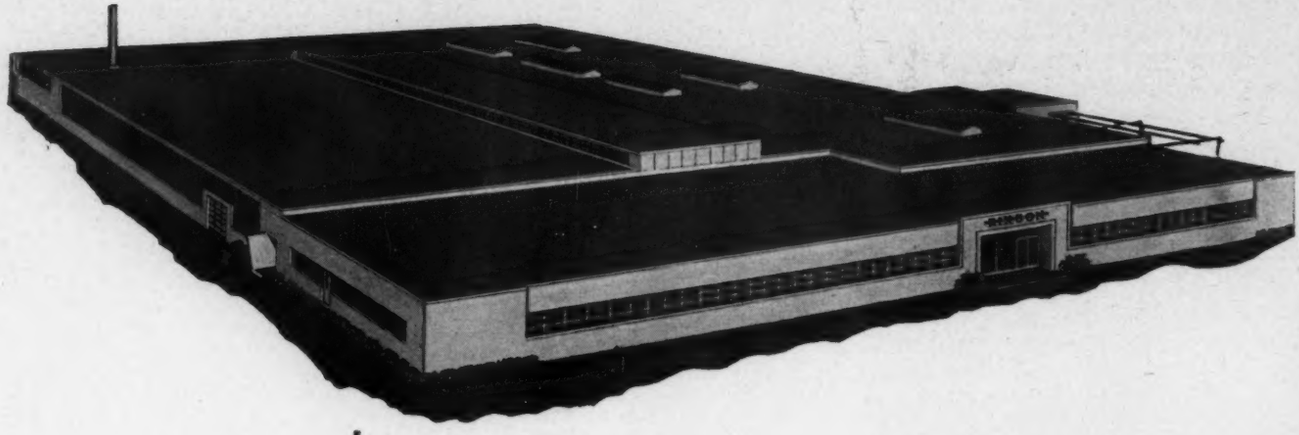
EXPORT DEPARTMENT: 100 EAST 42ND ST., NEW YORK 17, N.Y.

ASPHALT ROOFING • SHINGLES • SIDING • ASBESTOS CEMENT ROOFING AND SIDING SHINGLES • GYPSUM PLASTER • LATH • WALLBOARD • SHEATHING • ROOF DECKS • FIBERGLAS BUILDING INSULATION • ROOF INSULATION • SIDING CUSHION

Completely new —
PC Suntrol Blocks
take the dazzle
out of sunlight!
Pittsburgh Corning expands its line of 12-inch functional glass blocks with a group of totally new patterns known as Suntrol. Available in light-directing, light-diffusing and toplighting patterns, these blocks are expressly designed for locations where heat and glare are a problem. Suntrol Blocks contain a pale green fibrous glass diffusing screen that reduces panel brightness by 35%.
Suntrol Blocks do not replace the present line of PC Functional Glass Blocks. But for special applications, Suntrol Blocks will reduce glare, reduce instantaneous heat gain, and give more human comfort than ever before.
Descriptive literature is now on the press. Write to Pittsburgh Corning Corporation, Dept. C-91, One Gateway Center, Pittsburgh 22, Pa. Ask for the Suntrol booklet.
PC Suntrol® Glass Blocks
PITTSBURGH PC CORNING
ALSO SKYTROL®, AND FOAMGLAS®
® PC Trade Mark

RIXSON

has a *new home* with streamlined manufacturing facilities!



Be our guest at Franklin Park . . . on your very next trip to Chicago be sure to visit us here and inspect this new modern plant.

Continuing with the same careful, precision manufacturing from the finest quality materials . . . RIXSON products are now being built in this greatly expanded manufacturing area . . . in a planned production flow from the receiving platform through every step of production, assembly, and final shipping . . . assuring more positive control in deliveries. An even greater expansion has been made in product-development . . . in constant search for improvements of the design and function of RIXSON products as well as new products of builder's hardware mechanisms.

SINCE 1900 • manufacturers of single and double-acting CONCEALED DOOR CLOSING DEVICES and other improved mechanisms in builder's hardware.

our new address and phone numbers:

THE OSCAR C. RIXSON COMPANY

9100 west belmont ave. • franklin park, ill.

Franklin Park phones for local and long distance
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Chicago phones
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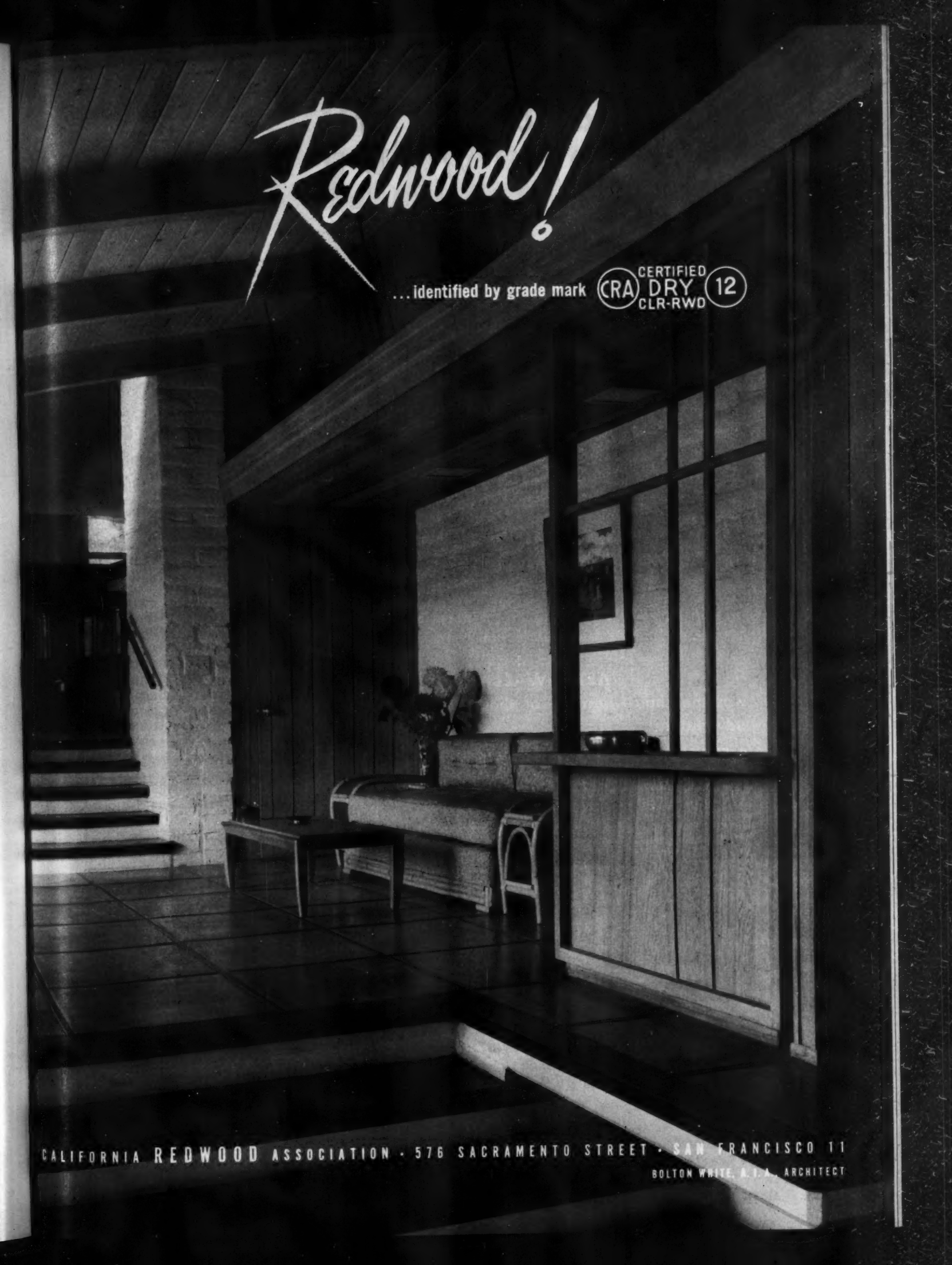
for entrance, vestibule, and all interior room doors, specify RIXSON throughout


Redwood!
...identified by grade mark
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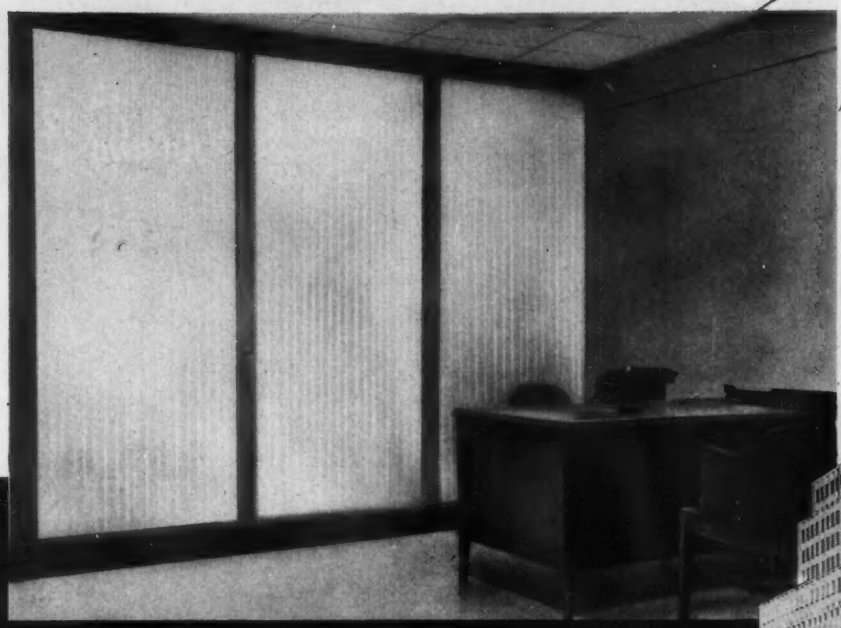
12
CALIFORNIA REDWOOD ASSOCIATION · 576 SACRAMENTO STREET · SAN FRANCISCO 11
BOLTON WHITE, A.I.A., ARCHITECT

More than a MILE of AETNAWALL



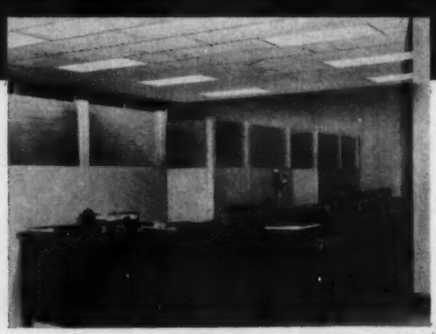
in National Distillers Products Corporation's new 120,000 square feet headquarters at 99 Park Avenue, New York.

AETNAWALL

was the choice because of these characteristic advantages:

• ***FLEXIBILITY*** • ***SOUND PROOF QUALITIES***

• ***GOOD LOOKS*** • ***SENSIBLE PRICE***



TISHMAN REALTY & CONSTRUCTION Co., Inc., owner-builder

Interior design & layout by MICHAEL SAPHIER & ASSOCIATES, INC.

The best in pre-fabricated movable walls for all uses . . . Product of

E.J.BOYLE

E. J. BOYLE DIVISION

AETNA STEEL PRODUCTS CORPORATION

14 Charlton Street, New York 14, New York

PRODUCERS OF: The new Arnot Partition-ettes; Arnot Functional Office Furniture; Hospital and Laboratory Equipment; Under-Counter Bank Equipment; Aetna Steel Doors and Frames; Kahr Bearings; Boyle Metal Office Partitions (Aetnawall).

MAINTAIN VITAL HOSPITAL FUNCTIONS

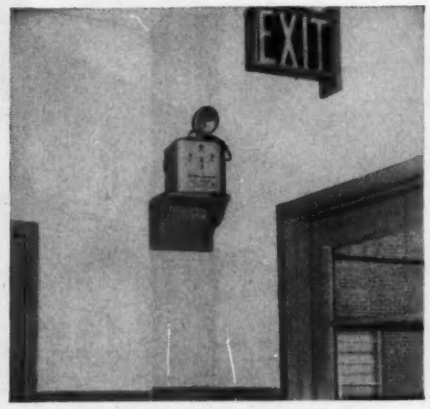
. . . with new Exide Lightguard emergency lighting units!

TELEPHONE SWITCH BOARDS

TREATMENT ROOMS

GENERATING ROOMS

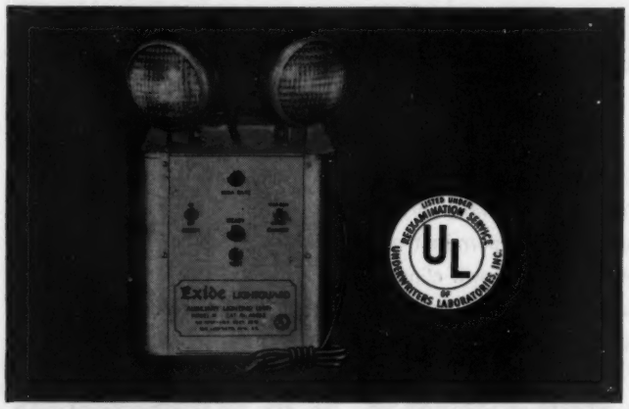
LABORATORIES



FIRETOWERS AND CORRIDORS

FEEDING AREAS

IN MANY HOSPITALS these secondary critical areas need emergency lighting protection for patients, workers and property. There are many more spots which need low cost, flexible lighting to supply adequate protection against an interruption to the normal electrical supply brought about by storms, floods, accidents, fires or other causes beyond the control of the utility companies. *When lights go out* in hospitals, Exide Lightguards go on, instantly, automatically! They maintain vital hospital functions, supplement and extend the value of existing built-in emergency lighting systems. For more lighting protection at low cost with less maintenance, specify genuine Exide Lightguard protection.



THE NEW MODEL M has a two-rate charger—high rate or trickle. After the emergency, automatic controls recharge the Exide battery specially developed for dependable operation, long life, less maintenance. UL-approved. Plugs into any 115 volt outlet. Single and double lamp units are available; each lamp illuminates up to 10,000 sq. ft.

EXIDE has years of experience in supplying long-life, low maintenance batteries for all types of emergency lighting systems. Call your Exide Sales Engineer for full details—send the coupon.

Your best buy for . . .
EMERGENCY LIGHTING

Exide®
LIGHTGUARDS®

MAIL THIS COUPON NOW!

EXIDE INDUSTRIAL DIVISION (Dept. AR)
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Send me complete information about:
☐ New Exide Model M units ☐ Exide-powered fixed emergency lighting systems ☐ Care and Maintenance of Storage Batteries Manual
☐ Have an Exide engineer call with demonstrator unit.
Name.....Title.....
Address.....
City.....State.....

Exide INDUSTRIAL DIVISION, The Electric Storage Battery Company, Philadelphia 2, Pa.

Another distinguished hospital air conditioned by the Carrier Conduit Weathermaster System

Scores of modern hospitals like these have Conduit Weathermaster air conditioning:

Georgia Baptist, Atlanta
Detroit Receiving, Detroit
The Moses H. Cone Memorial, Greensboro, N.C.
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Self Memorial, Greenwood, S.C.
Hermann, Houston
St. Vincent's, Little Rock
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Southern Baptist, New Orleans
Woman's, Detroit
Sandia Base, Albuquerque
Baptist Memorial, Memphis
Baylor University Hospital, Dallas
U. S. Veteran's, Houston

Driscoll Foundation Children's Hospital, Corpus Christi, Texas

Best place to get well is in an air conditioned hospital. The Conduit Weathermaster* System serves many of the finest. This air conditioning, perfected by years of unmatched experience, permits the occupant of each room to dial his own climate. Operation is quiet; there are no moving parts within the room. Cross-contamination is eliminated; there is no recirculation of air. And installation can be readily engineered into an existing building. Carrier Corporation, Syracuse, New York. *Reg. U. S. Pat. Off.

first name in air conditioning **Carrier**

the Benjamin Leader Line brings economical, glareless light to classrooms!

Schoolmaster

LOW-COST MAINTENANCE—louver swings down to right or left for easy servicing, or may be removed for maintenance

CHOICE OF MOUNTINGS:

Individual units	direct to ceiling
continuous lines	suspended

Quality Light for Close Seeing

Now—scientifically designed lighting quality for classrooms, offices, libraries, etc. The "*Schoolmaster*" provides abundant light output, adequate shielding, ease and flexibility of installation, at low first cost and economical maintenance.

"*Schoolmaster*" utilizes 40-watt Bipin fluorescent lamps or instant-starting 48″, 72″ or 96″ Slimlines. A choice of steel or transparent plastic side panels is available.

Whatever your school lighting problem, either in new construction or remodeling, you'll find the unit with the right solution in the Benjamin-Leader Line. Send for latest Data Bulletin on Benjamin-Leader Line Lighting Equipment.

BENJAMIN

Leader Line

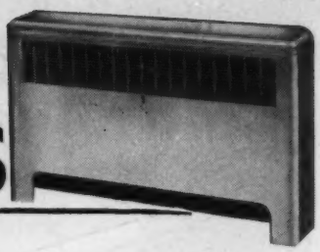
Sold Exclusively through Electrical Distributors

Exclusive licensee of the Leader Line in Canada: Robertson Irwin Limited, Hamilton, Ontario

Benjamin Electric Mfg. Co., Leader Division, Dept. Q-1, Des Plaines, Illinois, also makers of complete Benjamin lighting equipment and sound signals for Industry, Institutions and Commerce.

B2743

6600 Airtherm CONVECTORS



Add Beauty and Comfort to the . . .

. . . 1736-Unit PRUITT Housing Project

The clean, uncluttered design of Airtherm Convectors blends perfectly with the modern decor of the new Wendell Oliver Pruitt Homes in St. Louis. Their outstanding performance, ease of installation and easy maintenance make them exceptionally practical for this huge housing project.

Architect—Hellmuth, Yamasaki & Leinweber, Inc.
Mechanical Engineer—John D. Falvey
General Contractor—Millstone Construction, Inc.
Heating Contractor—Kremer-Hicks Company

Airtherm Convectors, available in wall, recessed or free-standing models, can help you solve a wide range of heating problems. Write for Catalog 702-A or consult our Catalog in Sweets Architectural File 28c Ai.

FOR HEATING SATISFACTION . . . THINK FIRST OF

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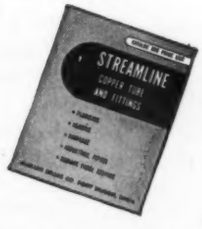
MUELLER BRASS CO. *Streamline*®

COPPER TUBE AND FITTINGS...

EASILY INSTALLED FOR *BOTH* SUPPLY AND DRAINAGE PLUMBING

The plumber who knows the advantages of Streamline copper tube and fittings is the man to call in for supply and drainage plumbing in the houses you design and build. For Streamline copper plumbing makes an efficient, neat and attractive installation that stays tight and leakproof, rust-free, clog-free and completely dependable for years to come. Prospective home owners prefer it . . . even insist on it because they know that an all-copper system will give them trouble-free service and last as long as the house they buy.

When you install Streamline copper plumbing, you usually save enough on installation time and construction costs to offset the slight additional cost of the copper tube and fittings. And you have a finished home that is far more salable because of the copper installation.



Write today for our latest catalog of Streamline plumbing and heating products.

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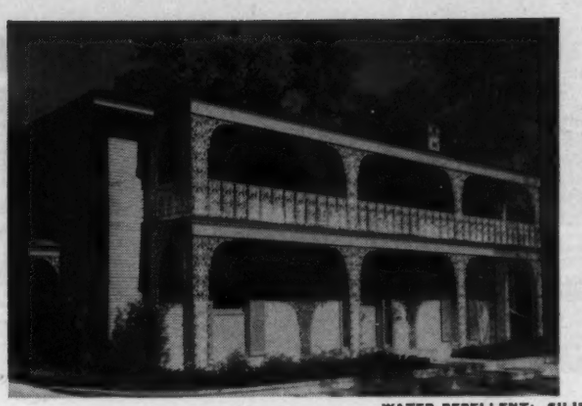
MUELLER BRASS CO. STREAMLINE PRODUCTS

MUELLER BRASS CO. PORT HURON 5, MICHIGAN

traditional



Architect: **Frank C. Dill, AIA**
Contractor: **Southern Lumber Co.**

To retain its original "French Quarter" charm, the pink brickwork of the Sterling Hogan, Sr. home in Houston, Texas, has been protected against efflorescence or staining by a silicone-based water repellent treatment.

WATER REPELLENT: SILIXON, MADE BY NAPKO PAINT & VARNISH WORKS.

or

modern

Architect: **Frank Lloyd Wright**
Contractor: **Wiltscheck & Nelson, Inc.**

To preserve the original dramatic beauty of their Administration and Research Center against efflorescence and dirt streaks, S. C. Johnson & Son, Inc., of Racine, Wisconsin, applied a silicone-based water repellent treatment to the masonry sections of these buildings four years ago.

A water repellent treatment made with *Dow Corning Silicones* preserves the beauty, cuts maintenance costs

No matter the amount of surface area, no matter the type of masonry, weatherproofing treatments made with Dow Corning silicones help retain the "like new" appearance longer and at less cost. Completely invisible and non-plugging, silicones do not change the color or "breathing" characteristics of treated surfaces. Maintenance and upkeep costs are greatly reduced because staining, streaking, spalling and efflorescence are minimized or eliminated entirely. The treatments cost surprisingly little; remain effective for years.

Dow Corning silicone-based water repellents are now available from formulators and their distributors in every part of the country. Write Dept. DD-21 for more information and a list of suppliers. Dow Corning Corporation, Midland, Mich.

DOW CORNING
SILICONES

Aluminum SLIDING DOORS & WINDOWS

BUILDERS

Panaview offers the widest range of stock sizes permitting maximum flexibility of design for all types of construction.

Heavy gauge extruded aluminum of highest quality . . . never needs painting.

100% weather-proofed.

All window sash can be lifted out for easy cleaning and maintenance.

All hardware is flush allowing doors to by-pass one another.

Nylon rollers in windows for ease of operation.

. . . and remember . . . the best costs no more!

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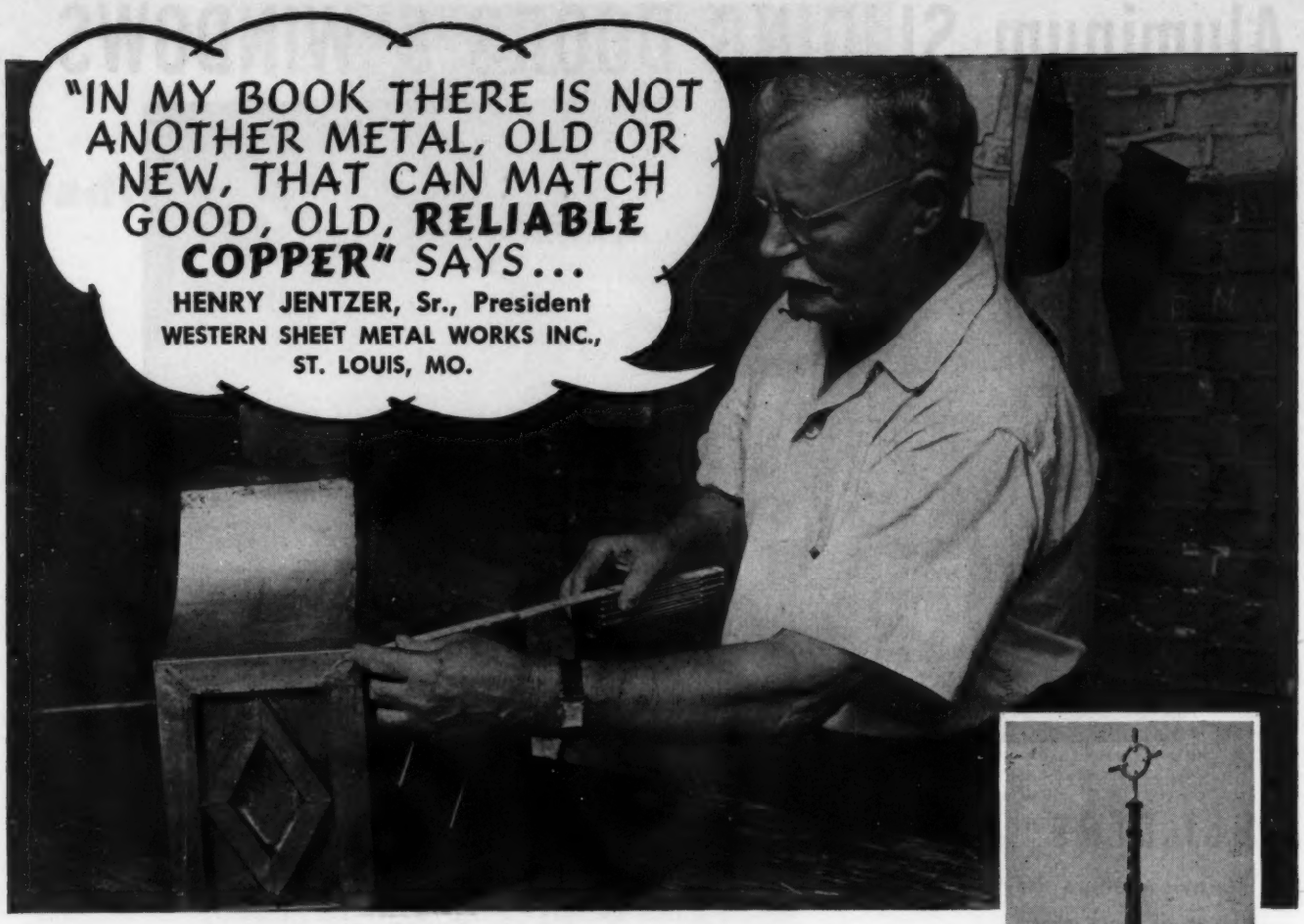
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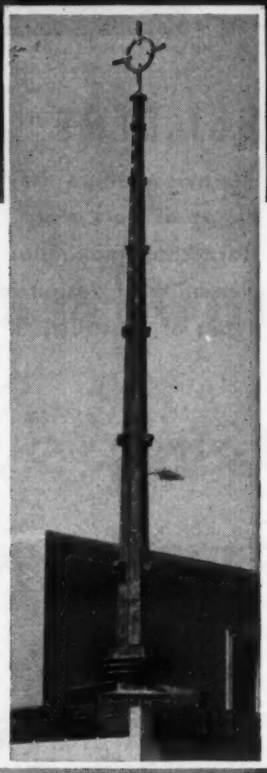

(Right)

ONE EXAMPLE of the intricate designs that can be fashioned due to the workability of Revere Copper is this spire made by WESTERN SHEET METAL WORKS, INC., for the House of Philosophy, Society of Jesus, Missouri Province. *Architect:* LEO A. DALY COMPANY, St. Louis, Mo., and Omaha, Neb.

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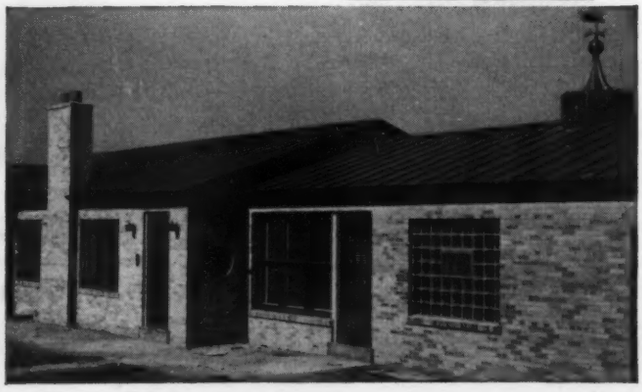

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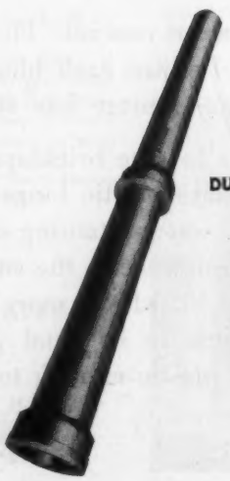

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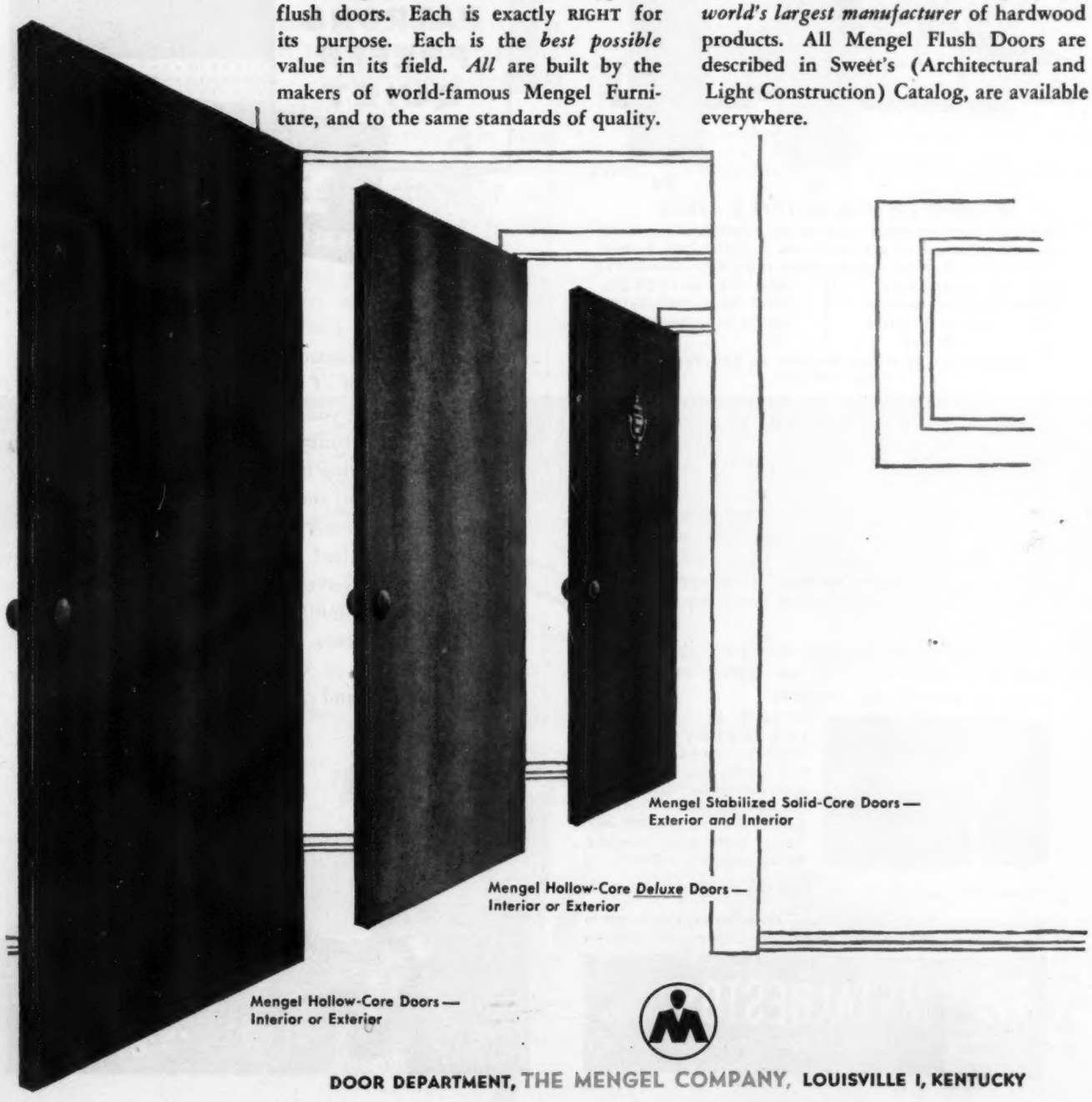

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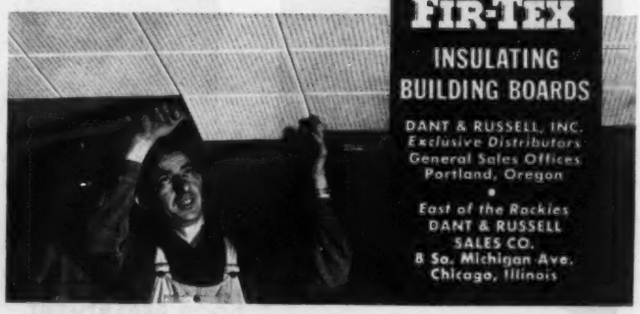

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2nd Best Fixture — 297
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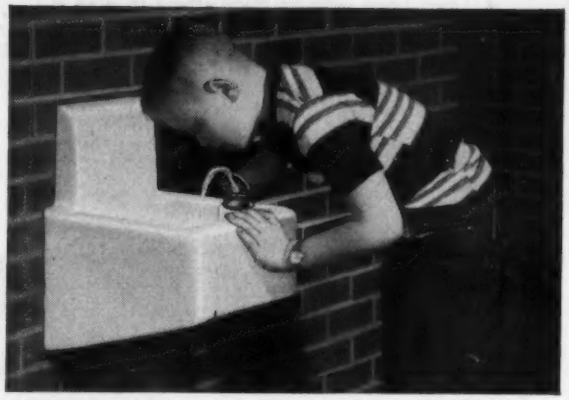

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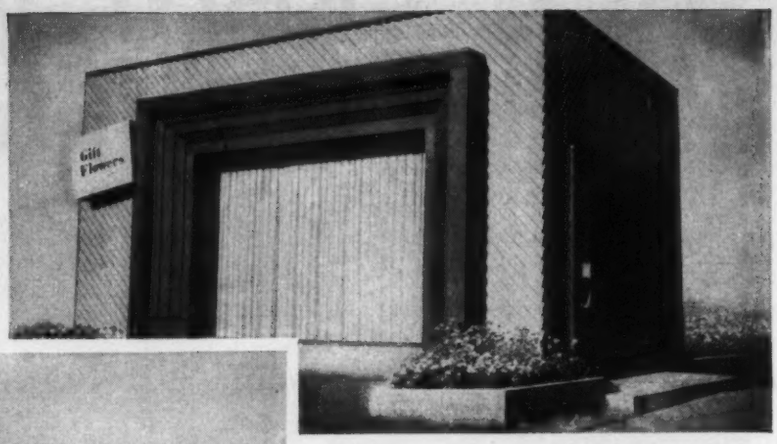

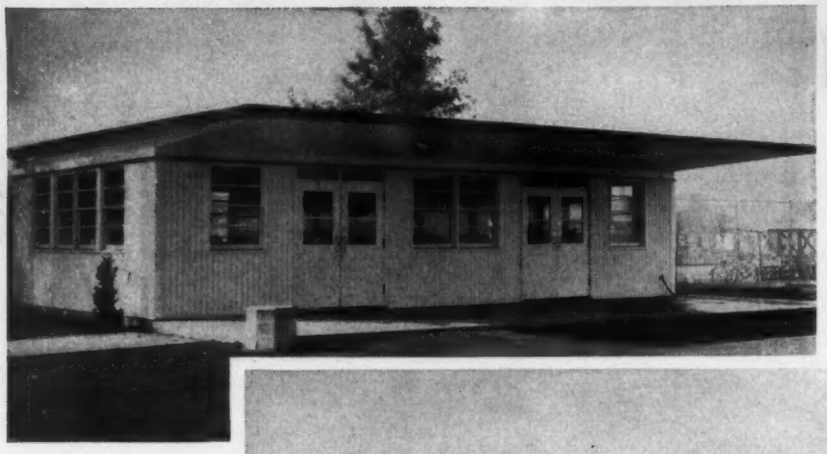

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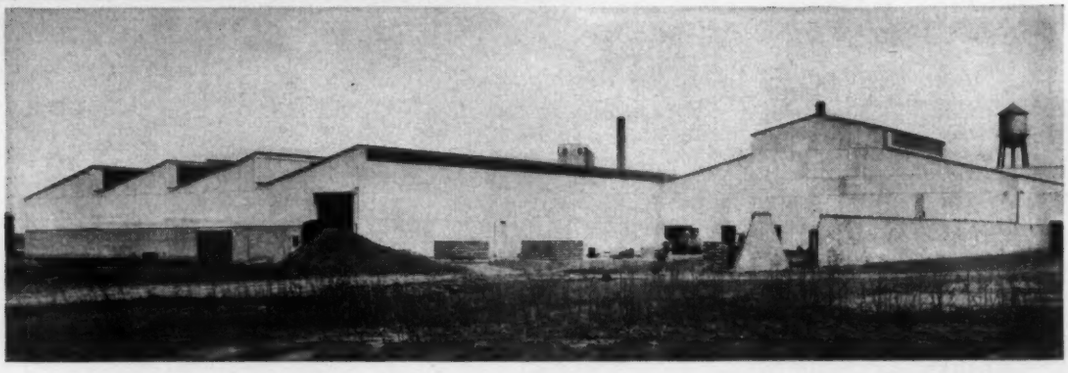

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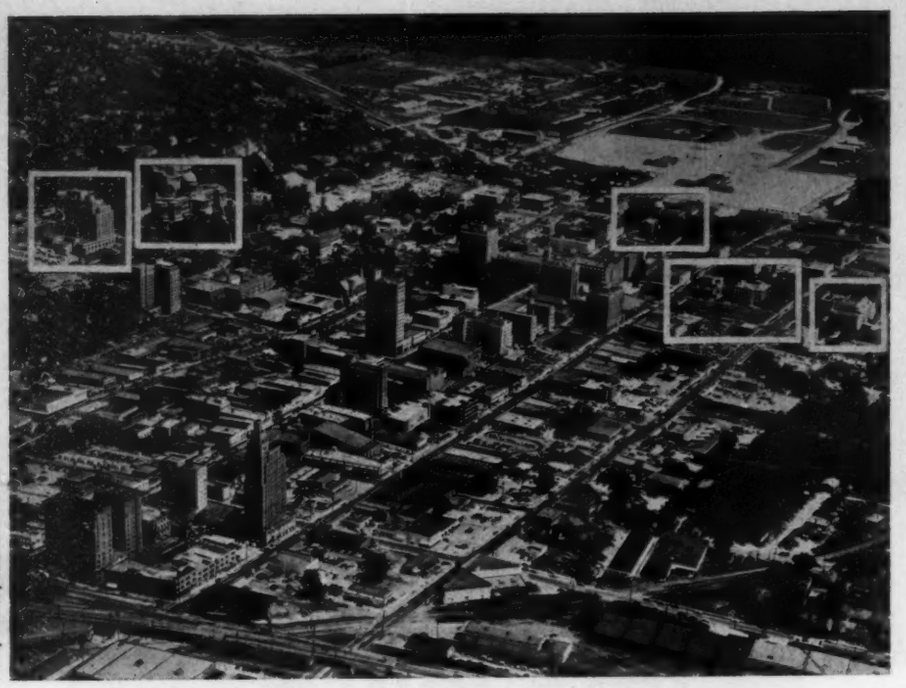
Joseph W. Molitor

JACKSON, MISSISSIPPI is typical in many ways of the United States' "New South." It has a proud history of municipal growing pains, achievements, tragedy, somnolence, and renascence. Once it had its share of what would by now have become historical buildings, had not most of them been destroyed; and architecturally it is an exciting place today, with over 40 licensed architects in more than 20 busy firms. For a city of about 100,000 people this is unusual; nor is it usual to find, in a place where tradition is so strong, as uniform a desire for contemporary expression among architects themselves. Not that modernists find the going always easy in Jackson; at times it is distinctly hard; but there exists a remarkable unity among the profession on this and other matters of common interest.

This situation has impressed us, so we have dug into the city's history, talked to many of its officials and several of its businessmen, held bull sessions with its architects and sent them questionnaires, of which a very high proportion have been returned filled with information and opinions.



Hiatt, courtesy Jackson C. of C.

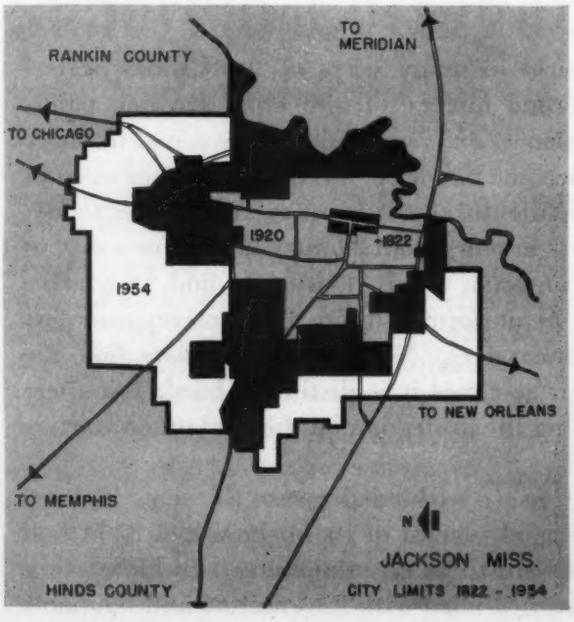
1

Joseph W. Molitor

2

Joseph W. Molitor

Since 1920 Jackson has grown rapidly and improvements have been made. Photos on preceding page show Capitol St. before and after wires were buried. Elevated tracks of Illinois Central are visible in foreground of air view, on which government building sites are also indicated (left to right): State Office Building (photo 3); New State Capitol (2); Old State Capitol (1); Hinds County Court House (4); City Hall (5), designed by William Gibbons, built in 1847, rated the city's best antebellum building by Jackson architects. Old Capitol runs a close second. City Hall square, once disfigured by gas works, is now planted to flowers



Jackson started as a trading post (called Le Fleur's Bluff after its proprietor, gay, French-Canadian Louis Le Fleur) on the high bank of the Pearl River, part of a large tract sold to the United States in 1820 by the Choctaw Nation. In 1821 the Mississippi legislature, recognizing that citizens from central and northeastern parts of the state were having difficulty in reaching a succession of capital cities in the southwest, appointed a commission to establish a permanent capital near the state's geographical center. The site they were to select had to have "an elevated position, pure water, wholesome air, fertile soil, useful timber, proximity to navigable streams and public roads." On November 20 of the same year Thomas Hinds and William Lattimore, who with James Patton formed the original commission, informed the legislature that Le Fleur's Bluff met all the requirements. The commission (which now included Peter Van Dorn, who later drew the first map of the city) was promptly instructed to lay out the capital. By 1822 the first ten building lots were sold subject to erection of "a neat log or frame house thereon, not less than 30 feet in length," and a two-story brick capital building, 30 by 40 feet, had been commissioned and erected by one B. M. Hines; it cost approximately $3,000 and was reportedly undistinguished in appearance. In November 1822 the state offices moved to Jackson.

Van Dorn's map shows a checkerboard layout, modest in extent, with alternate squares reserved as commons or parks, a plan suggested as ideal 17 years before, by Thomas Jefferson, to the then Territorial Governor Claiborne. Abram Defranc, superintendent of public buildings in Washington, D. C., spent part

3

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Joseph W. Molitor

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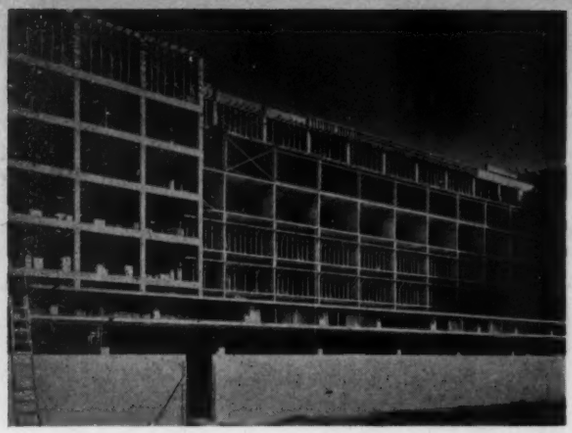
of the year 1822 in Jackson assisting the commissioners. Other sites reserved in the original plan were Capitol Green, Court Green and College Green. Governmental and educational buildings have continued to hold importance in the city; on the other hand, as it grew Jackson seemed to lose its interest in city planning, a not uncommon American phenomenon although perhaps here more regrettable than usual considering the auspicious beginnings.

In later years that interest revived, and between the two World Wars Jackson acquired a city planning commission on which some local architects have served as members of subcommittees; but conscious over-all planning has remained difficult to achieve. There is some talk now of a master plan which is being developed by the city's non-resident planner, though the pressure of immediate needs seems to cloud the project. Several Jackson architects have indicated that they might participate more fully than they do in such a public activity; yet they, too, are busy. Meanwhile, highways and railroads into the city's heart have also become busy (the Illinois Central tracks through town are now elevated); Jackson is a crossroads of land and air travel east and west and north and south; the region has pretty well changed from one-crop, share-cropper farming to a balanced economy based on diversified, mechanized agriculture and equally diversified industry. The change is bringing material prosperity, as measured by post-office receipts and bank savings, deposits and clearings, to the Jackson metropolitan area as it is elsewhere in the deep South. People generally are better off, they have more leisure, more comfort. Educationally the area is pulling itself up by its bootstraps from the low national rating which once, quite naturally, accompanied reconstruction and financial insecurity.

For, also like the rest of the South, the Jackson area suffered after the Civil War. In 1836 and '37 the railroads had come to the city, and as both a transportation center and a state capital it was bombarded and burned by General Sherman during the Vicksburg campaign. So many brick chimneys stood stark after the burning that they called it "Chimneyville." The city revived slowly, rebuilding itself almost entirely, subsisting on mule-cultivated cotton and the business generated by legislative activity. The city that was proudly named after Major General Andrew Jackson, Mississippi's hero of New Orleans — as a young man he worked in the state and he was married there — and the President of the United States, had a rough time until the end of the century. Indeed, it was not until nearly 1920 that the upturn in Jackson became evident. Each succeeding decade has seen Jackson grow, and since World War II, phenomenally.

Population figures tell the story: In 1837 the city limits contained 1,881 inhabitants; in 1860, as the largest town in the state's interior, Jackson had 3,191. In 1920 the figure was 22,000; in 1930, 48,000; 1940, 62,100; in 1950, 98,271. In that last year the Jackson metropolitan area held some 142,000 people, and growth has continued. These statistics reflect a prosperity fostered by the discovery of oil and gas in the state, by the change in agricultural pursuits, and by tremendously increased industrial activity. Industry has not located solely in the city or in one part of it; plants are situated throughout the region and, in fact, much of the state. In great part this is due to the farsighted,



6

Institutional Buildings: 6, concrete structure now being built for University of Mississippi Medical School and Teaching Hospital; M-N-O Associates, the architects, are an association formed for this job by E. L. Malvaney, R. W. Naef and N. W.

J. W. Molitor photos except as noted

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9

Overstreet. 7, Battlefield Park Swimming Pool; Biggs, Weir & Chandler, Architects. 8, Radio and TV Studios for Lamar Life Insurance Co.; James T. Canizaro, Architect. 9, Livingston Park Branch Library; N. W. Overstreet & Associates, Architects. 10, First Baptist Church built some time ago and not strikingly different from new construction barely visible in background. 11, Roman Catholic Church designed for a very low budget; James T. Canizaro, Architect. 12, Methodist Children's Home; Jones & Haas, Architects

JACKSON, MISS.

aggressive policies of the Mississippi Power and Light Company, which has not only built itself up but has also spent much time, energy and money in attracting industry. Between 1946 and 1952, 44 new industries started up in Jackson; despite recent economic readjustment in the country as a whole, this trend has continued. Business activity of other kinds has also increased; for instance, by 1953 there were 255 wholesale establishments, and in this field dollar volume had increased 500 percent in the preceding 10 years, according to the Chamber of Commerce.

The steadily improving economic situation is undoubtedly the reason Jackson has so many optimistic architects. One whose words are typical reports that the city affords an "excellent opportunity for a satisfactory volume of work year in, year out," with "the trend definitely progressive." Most of the present firms, comparatively new, have been established only since 1946. A few have been in practice since the 1930's, and a small minority were started prior to World War I. The average licensed architect's age is closer to 40 than to 50; some are over 50, and only a few are younger than 40. Some find their work confined to the Jackson metropolitan area, but most of their practice is spread over a 100-mile, even a 200-mile, radius, and occasionally a Jackson firm does a job in a neighboring state. Virtually all the architects in the city are members of the American Institute of Architects. Many were born or raised or had lived there before opening their offices; others came from other parts of the South; some came even from the North, picking Jackson as a place presenting unique opportunities.

Even with all the work the city and region afford there is stiff competition for jobs. When we asked about this one architect's reply was a terse, illuminating, "Brother ! ! !," which was modified immediately by his statement that cooperation among members of the profession in Jackson is the best he has seen anywhere. Both these sentiments were echoed time after time, which indicates an exceptionally healthy, professionally sound attitude; Jackson's architects work hard to get jobs and are proud of their high ethical standards; they exchange personnel, ideas and — occasionally — frank criticism; they form associations when the size of a job demands, as in the case of the University of Mississippi Medical School and Teaching

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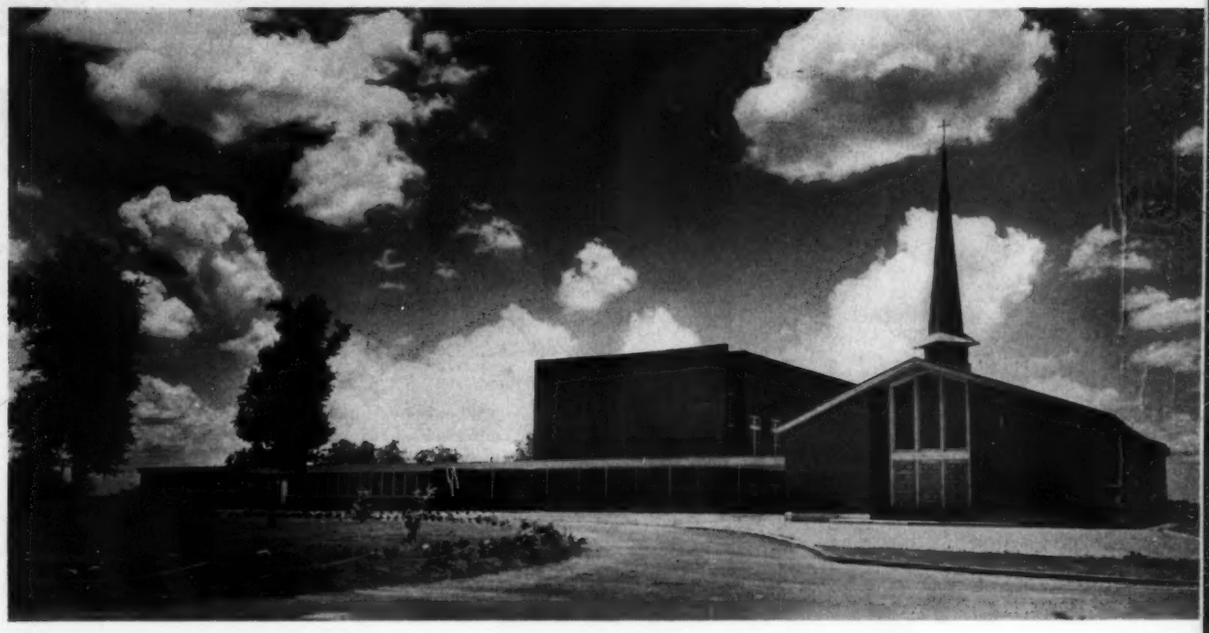

Clarence J. Laughlin

12

Hospital which is now under construction. There are no tremendous architectural firms. Some are moderately large; most are average, and a few very small.

As to clientele, most of the firms report that a client's understanding of the architect's function and contribution is seldom great initially, but that almost uniformly it improves until, when a job is finished, "they understand a lot better." Generally the architects feel that they could profitably, to both themselves and the public, undertake a larger share of the available work than they normally get. This seems to be true mainly of private houses and smaller commercial work, particularly in the surrounding rural areas, which is doubtless a situation familiar to architects everywhere in the country. So, too, is what is advanced as the principal reason: a popular idea that an architect's fee is an added cost, for which little tangible return can be obtained. Consequently the cheap stock house plans available from lumber dealers are much used. In the case of other types of buildings — schools, hospitals, public buildings, etc. — local architects are usually employed. Not very often are outside firms called in.

The public attitude toward contemporary design seems different to different members of the profession. Some find the public little interested; others find a high degree of interest; still others believe the attitude is variable. Personal observation leads to the conclusion that contemporary work is accepted in Jackson to an average degree, possibly slightly less than elsewhere. The sense of tradition is strong despite the fact that few monuments survive from the past. On the other hand, Jackson's citizens are exposed to the same cultural influences that prevail elsewhere: the same news services, magazines, radio (and lately, television), automobiles, storefronts, styles in clothes, service clubs, movies, library books, recreation and educational philosophy. In Jackson a brick house does not carry the social connotation that it does in some localities; but there as in many cities along the lower Mississippi there is considerable use of concrete in larger buildings; concrete workmanship is excellent, and architects, engineers and labor understand the material. The public has long since accepted it, as they now accept other modern materials and contemporary design, particularly when cost advantages are carefully explained. If at times one architect finds his share of the public slow

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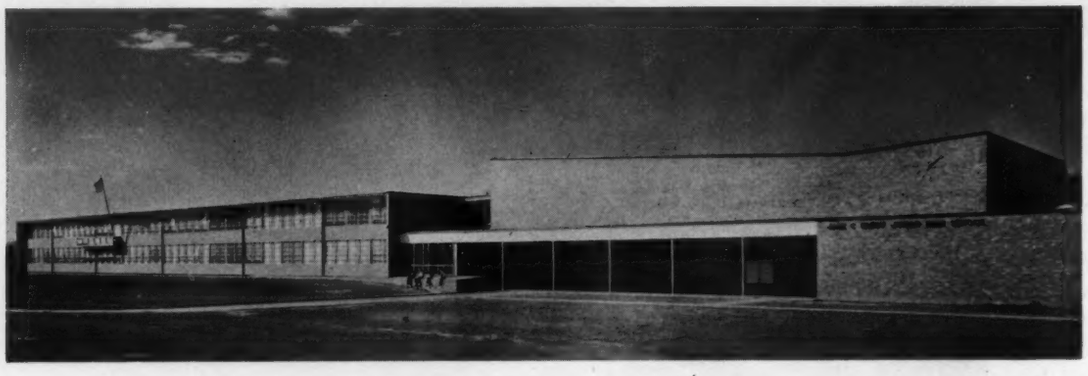
E. L. Bailey Junior High School, 13, new in 1944, contrasts with recent educational buildings: College Park Auditorium, 14, R. W. Naef, Archt.; Sallie Reynolds Elementary School, 15, James T. Canizaro, Archt.; Jack C. Hardy Junior High, 16, Biggs, Weir & Chandler, Archts.

JACKSON, MISS.

16



J. W. Molitor photos except as noted

to accept as advanced work as he'd like, another will be able to counter with case after case exactly opposite. There are few buildings approaching the radical in design, many that are substantially above average, and, as always, whatever the architectural style, all too many which fall short of the ideal. In this connection, a house designed by Frank Lloyd Wright, unfinished for a long period and something of a local *cause célèbre*, is currently being completed. It will probably not cause half the furore when it is done that it did as a too-long-exposed foundation.

The educational system in Jackson has been typical of what existed throughout the South: for a phenomenally increasing enrollment, a separate-but-equal building program proceeding as fast as money could be found. It was felt for a while that the Supreme Court's anti-segregation decision might permanently hamper the program; that is doubtful since the pressure of numbers of children to be schooled is unabating. Recent school buildings in and around the city are on a par with good schools elsewhere. In this field contemporary design has been well accepted. An able Superintendent, Kirby P. Walker, has established a cordial relationship between his staff and the lay public through the organization of citizens' advisory and study groups. Educational aims are comprehended, a building program has been charted and implemented year by year. The school system has employed a staff architect, not to design but to administer the program; for several years another architect has been an influential member of the school board, refusing school commissions for himself for his entire period of service. All the city's schools are designed by private firms.

A number of other Jackson architects are active in cultural, recreational and civic organizations. The Mississippi Art Association, Jackson Symphony Association, Little Theater group, Mississippi Economic Association, Jackson Chamber of Commerce, the national service clubs, and civil defense organizations all have architect members, as well as the school board and city planning board which have been referred to previously.

An architect in Jackson, though he may at times feel out of the main stream that he believes flows more strongly in the country's huge metropolitan centers, is far from isolated, professionally or non-professionally. Although he sees few effects of the A.I.A.'s public relations program in his daily affairs — and there is locally a great desire for a more effective program of this sort — his work is of interest to his fellow citizens, laymen though they may be. The local newspapers publish pictures of it; it is discussed in conversations and over the telephone. He has some definite advantages over his fellow-practitioner in Megalopolis. He is one of a select, respected few in a healthy, growing community; he pulls his weight in public affairs and keeps busy at a profession he's in love with; and he can live as close to his office as he wants to.

Power production and industrial development (17, 18) have stimulated and are being stimulated by commercial activity and increasing ease of transportation. 22 shows a downtown building about completed. Bus terminal (19), R. W. Naef, Architect, was published in ARCHITECTURAL RECORD, October 1941. Parking *garage (20), truck terminal (21) and cloverleaf (23) on Route 80 show effect of increasing highway transportation. Not pictured but also important is Jackson's airport, Hawkins Field, with its colonial Administration Building. While many of the city's stores are designed as dictated by the chains of which they are parts, some excellent examples by N. W. Overstreet & Associates have also appeared in recent issues of* ARCHITECTURAL RECORD

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Jackson C. of C.

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Jackson C. of C.

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Jackson C. of C.

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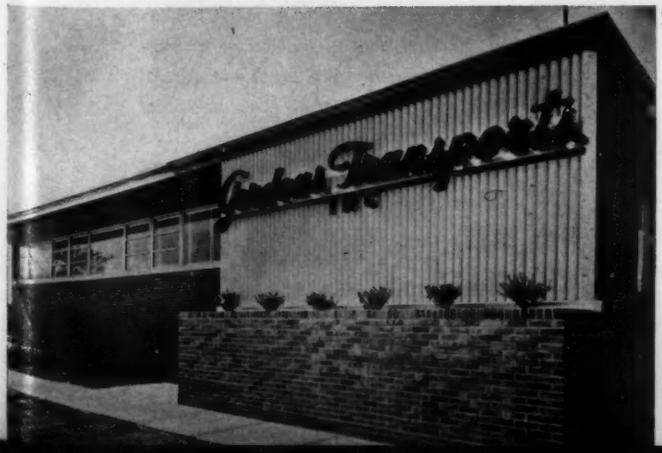

Jackson C. of C.

JACKSON, MISSISSIPPI: M

24

King, courtesy Jackson C. of C.

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Few of Jackson's old houses (24) remain. 25 is a house by Burton & Staats; 26 and 29 show the exterior and interior of the house designed by John M. Mattingly for himself. 27 and 28 are the

27

J. W. Molitor

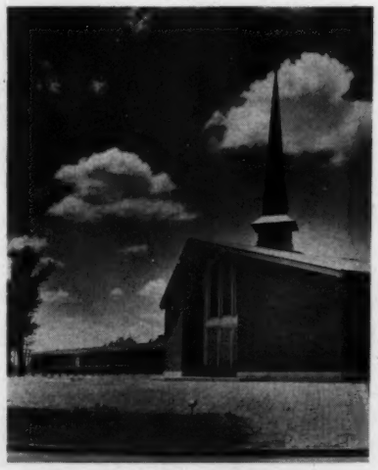
28

29

Peter Lutken, Sr., house designed by James T. Canizaro, who was also architect of the Harrison house which not only won a regional A.I.A. honor award but was voted Jackson's best modern residence by the city's other architects; see ARCHITECTURAL RECORD, *September 1952*

METHODIST CHILDREN'S HOME

Some of the buildings at this institution are quite old, and recently when a chapel was added it was decided to unify at least the façade. The top photo shows the S. B. Lawrence Chapel with, at left, the new wall which was applied to the end of the existing Cafeteria Building. The wall conceals a structure which, though still useful, had little architectural merit. Behind the wall is a stair tower, and in front of it a covered walk leading to the new Watkins Clinic. The interior has laminated wood arches supporting the roof; these stand free of the bent panels of brick which form the side walls. Jones & Haas, Architects.

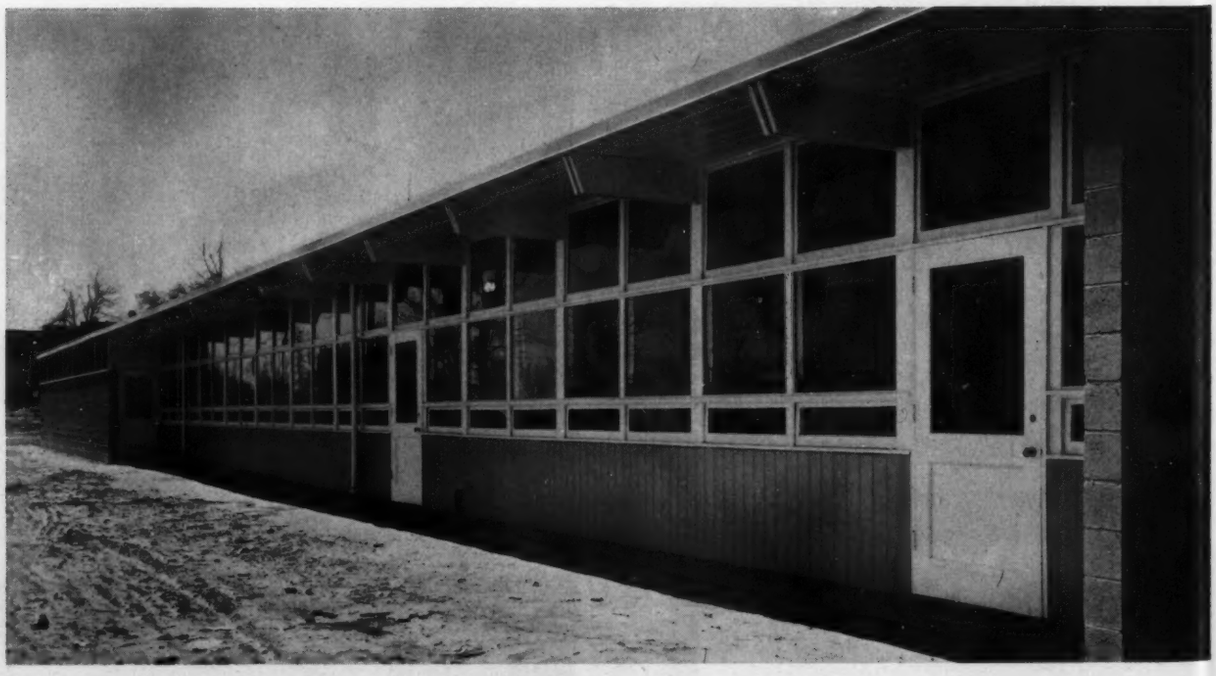


Clarence J. Loughlin

BENJAMIN F. ROBERTS DINING HALL,

JACKSON, MISSISSIPPI

CANTON ELEMENTARY SCHOOL,



Joseph W. Molitor

JACKSON COLLEGE

James T. Canizaro was the architect of this dining hall for Jackson College, a Negro institution, one of several colleges in the city of Jackson. The structure is economical and quite simple: Masonry bearing walls, steel girders and open-web joists.

Along with the names of four other architects (Thomas J. Biggs, N. W. Overstreet, Robert W. Naef and Edgar L. Malvaney) Canizaro's was one of those frequently mentioned in reply to our question: "In your opinion which architect in Jackson has done the most for the profession?" Overstreet, who opened his office in 1912, received by far the most nominations for this honor. Naef and Malvaney started practicing in 1932, Canizaro in 1937, Biggs in 1946.

CANTON, MISSISSIPPI

Biggs, Weir and Chandler's Canton school, for a neighboring town of about 7000 inhabitants, was done for an extremely low budget — a common occurrence in the area. There are six classrooms (grades 1 through 6), a 33- by 56-ft multi-purpose room, kitchen, chair storage space and a small records room in the double-loaded corridor plan. The building rests on a concrete slab, has steel pipe columns and wood framing, wood-finished partitions, wood roof deck, concrete block end walls. Including a minimum of built-in equipment, but not including kitchen equipment, the low bid in September, 1951 was just under $36,000 — nearly 5 per cent below the architects' estimates, and amounting to less than $6000 per classroom.

RESIDENCE IN BILOXI, MISSISSIPPI

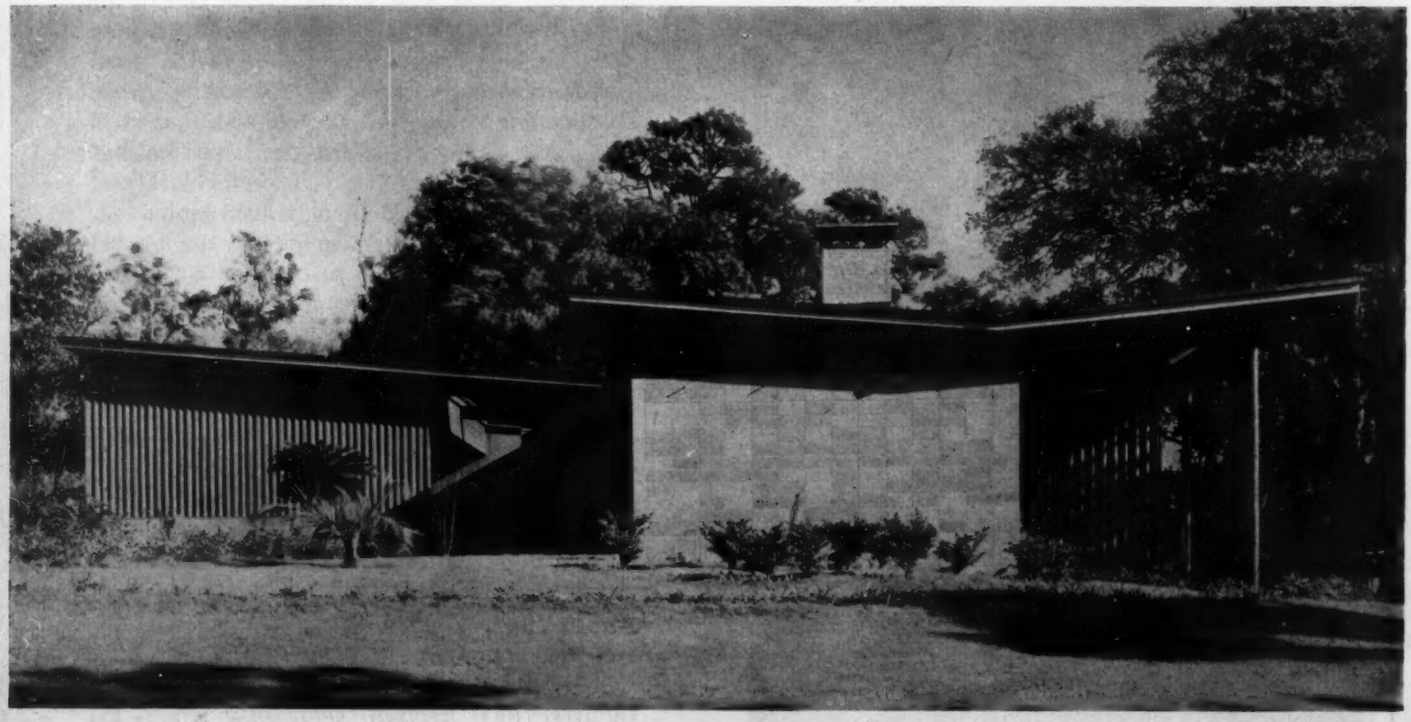
William R. Allen, Architect

JACKSON, MISSISSIPPI

While W. R. Allen practices on the Gulf Coast, the architects of Mississippi are all fairly well united and Bill Allen in particular is welcome in Jackson. There is a story, substantially true, of a Jackson group, working jointly on a large project, who at one point found themselves completely stymied. The practical requirements were met, but the building remained just that — a building, nothing more. Allen was called in, given the schematics, paper, and a board in a far corner of the office. After several days he produced some cogent criticisms, many of which were adopted.

About this house in Biloxi Allen wrote at the time it was to be photographed: "I have been notified by the owners that the chimney smokes and at long last they are going to rebuild it, at the same time digging a hole where they can bury the architect. My comment in defense is that, to date, it is the first of my buildings whose roof has not leaked. But here again we have caused the owner concern by creating a butterfly roof which channels all the water into two outlets only, and a good-sized rain makes a sizable waterfall and washes away the landscaping."

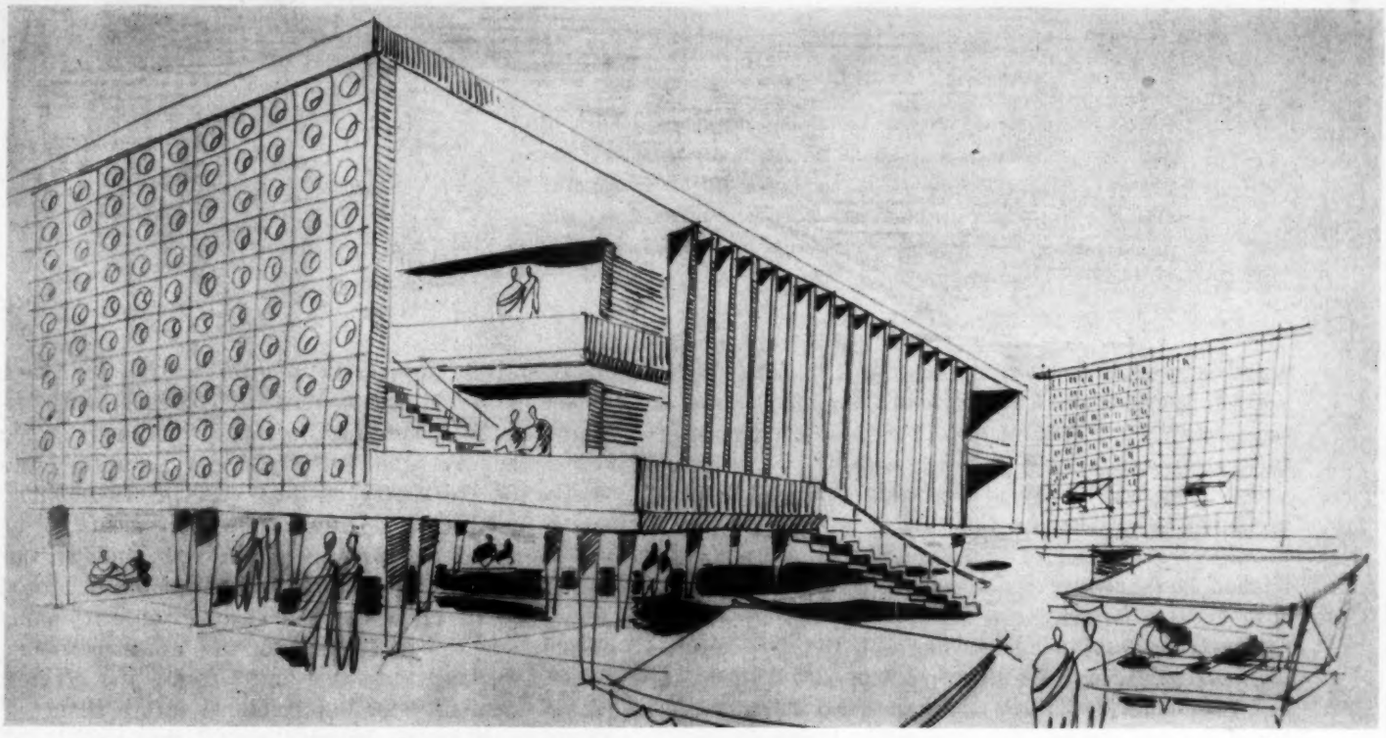
Joseph W. Molitor



The Life, the Teachings and the Architecture of Matthew Nowicki

By Lewis Mumford

Part IV | NOWICKI'S WORK IN INDIA

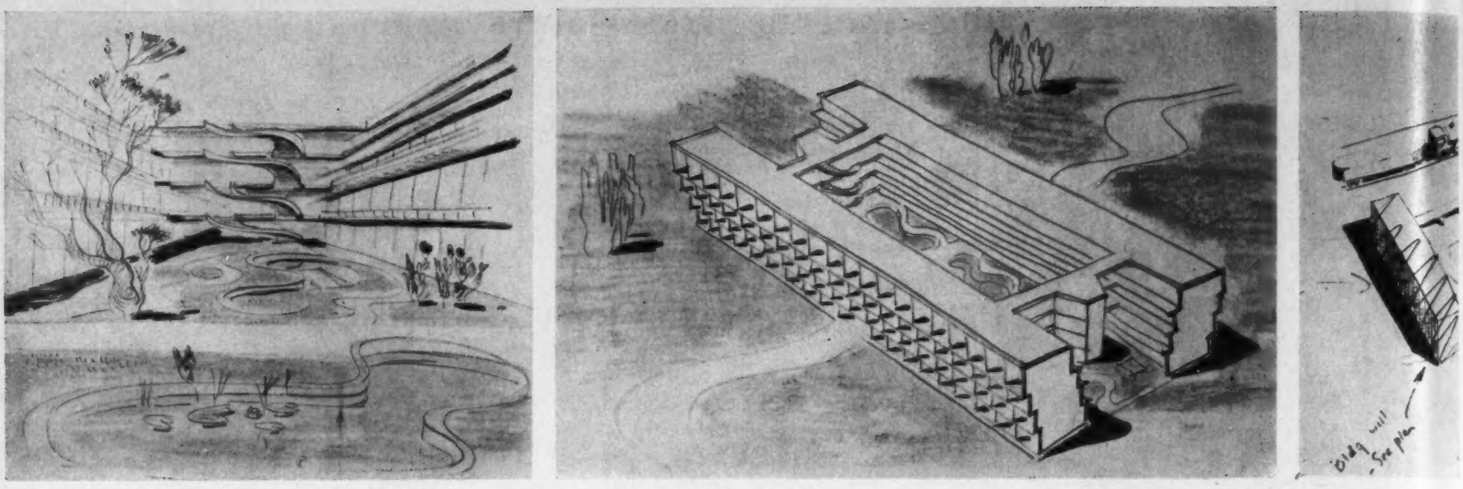


Design for an office building in Chandigarh, capital city of the Punjab

EVEN WHILE he was teaching, designing the State Fair Arena, and working out the fundamental conception of the design for the State Museum at Raleigh, Matthew Nowicki had embarked on work that drew even more fully on all his powers: that which he undertook, as consultant with Mayer and Whittlesey, for the design of the new capital of the Punjab, in Chandigarh, India. This collaboration came about largely through the earlier friendship he had formed with Clarence Stein, an old colleague of Mayer's.

That this great opportunity in India should have been, by accident, the occasion of Nowicki's death on his return flight is a double tragedy, for India gave Nowicki that which had hitherto been lacking among the younger architects, although for long there had been evidence of it in the work of Frank Lloyd Wright, and there were fresh indications of it, even before, in the later work, for example, of Oscar Niemeyer in Brazil. Those two and a half months in India not merely knit together his education and experience, up to that point, but prepared the way for a new integration which would, I think, have had a decisive effect, not only upon his own designs, but on the course of modern architecture. In one form or another, it is indeed bound to come, unless the machine overrides human purposes and a pathological nihilism brings civilization itself to an end.

India, with all its contrast of magnificence and poverty, was, it goes without saying, a shock to Nowicki. But it was the human lesson of Hindu culture, as conveyed in its rich buildings, whose ornament and symbolism so intimately, yet overwhelmingly, dominate the whole, that made their impact upon him. After a week's motor trip to some of the great cities and monuments of Indian architecture he wrote his wife: "I learn so much here." That a Westerner had much to learn from Indian architecture and town-planning was something that Sir Edward Lutyens, the planner of New Delhi,



Above: interior court and aerial perspective of Nowicki's design for an apartment house for "Superblock L 37", Chandigarh. Right: imaginative scheme for railroad station and plaza. Far right: quick sketches of his design for the Assembly Hall

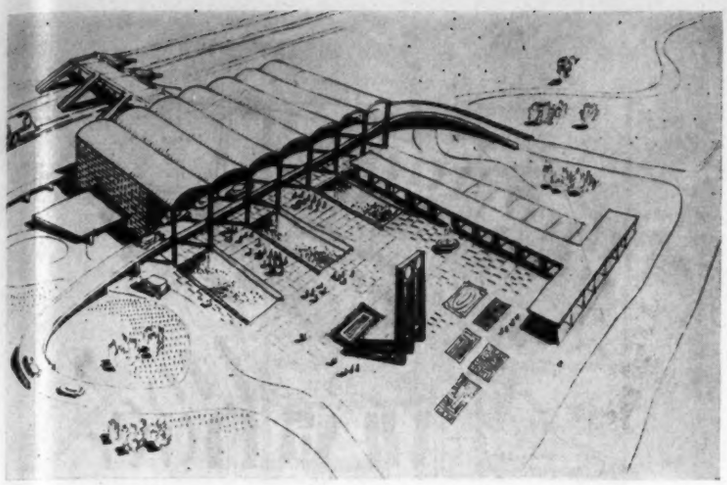
would have raised his eyebrows over, though forty years before Patrick Geddes, whom Lutyens dismissed as a "crank", had made that the very basis of his many town-planning proposals in India.

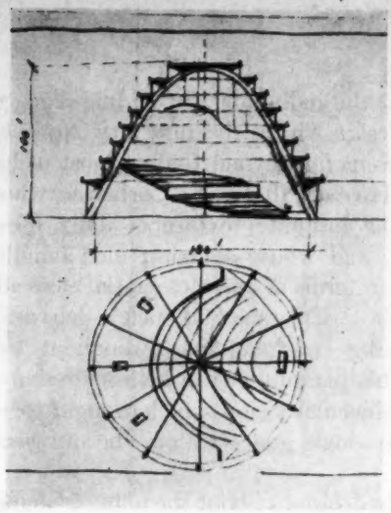
But there was more in Nowicki's admission than a becoming receptivity, on the part of a Westerner, to the ideals and forms of the East: it was also an admission, on the part of a mind committed to the modern, that the machine age, in its anti-historicism, anti-regionalism, anti-humanism, was not the last word in human culture. As I have pointed out, this reaction took place in Europe under the Nazi occupation; but in a form that was limiting, rather than releasing, to the human spirit, so that it was with some embarassment that Nowicki would refer to this sentimental return — and indeed, in the work of the Dutch architects, like Oud and Dudok, it was, alas! accompanied by an esthetic falling off from the clarity and formal elegance of their earlier designs. But here in India, still teeming with an emotional and sexual life so strong that it had once pervaded even the paintings of the Buddhist monks in the Ajanta caves, here that aspect of man's nature could not be so easily rejected, on grounds of mechanical function, formal purity, or esthetic elegance. At this point one of Nowicki's greatest qualities came to the front: his readiness to question old assumptions, to learn from new experiences; for that was one's main assurance of his relatively unlimited capacity for growth.

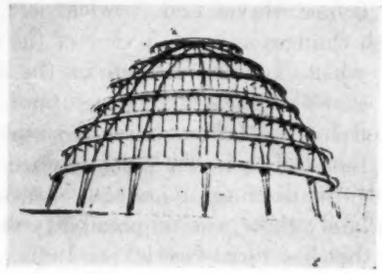
During the late winter of 1950 Nowicki had begun working with Mayer and Whittlesey on the city plan for Chandigarh. About the broad concept of the scheme, such as the use of the superblock and the neighborhood unit, the collaborators were in general agreement: so, too, with the need for concentrating the open air markets. But Nowicki in a letter written to Albert Mayer in March, found himself challenging other assumptions. "I come back," he said, "to my very strong feeling that we admire the plans of beautiful cities mostly for the clarity of their concept. In planning a city for ages of its future growth, it seems to me that we must continuously beware of trends in our present taste that might not be appreciated in future. . . . The only unquestionable element in our thinking is cold logic and its striving for the utmost economy. Within this logic . . . one must secure the greatest possible flexibility for unpredictable future changes." Therefore, it has to further "what I would call functional flexibility, which is very much different from functional exactitude."

Nowicki then went on to distinguish in the city two functions, an everyday function and an occasional — as he called it "holiday" — function, and he held, almost as if Horatio Greenough's thoughts had taken possession of him "that if there is a cheaper way of providing well for these functions it is also going to be more beautiful. . . . This is so, I feel, because the concepts of economy and beauty derive from the same sources." All this led to his questioning any departures in the general street plan which would, in the interest of variety, create more than a minimum number of roads: "diversity of plan should be secured not through the diversity of size of the superblocks, but the diversity of their space treatment. It should be not a quantitative diversity, but a qualitative one." Following up this, he suggested that the path system within the superblocks should vary as much as possible and that there no prevailing system is needed or even desirable.

As for the holiday function of the city, here Nowicki's







bold concepts were equally clear. "The everyday function [working and dwelling] is responsible for the pattern texture of the city plan. The holiday function is responsible for the basic conception of the great scale composition. It is through the diagram of the holiday function that one can best express a plan of a city. The holiday function unites the city," and thus it became a graphic symbol of its plan. "I know," continued Nowicki, "no better example to quote than the axis, Place de la Concorde, Etoile, and the Bois de Boulogne. The perfection of Paris is related to the simplicity of this composition. The greatness of the holiday function was, I feel, underestimated in the recent city planning where the element of recreation was decentralized and confined within the texture. . . . In planning the holiday function for the entire city, it is legitimate to strive for magnifying of the space, which means that there should be a complete continuity of one composition, instead of dividing it into related parts. . . . In our plan there should be a continuous park system tying all parts of the city with the hill, the great park, the public forum, and the capitol area. The holiday function can depend very largely on a mass pedestrian movement, just as the everyday function depends on mass transportation. This difference should express itself in planning. Speed is needed in the repetitive movements. Leisure might be advisable in occasional movements of a greater significance where the process of getting to a destination is as important as reaching it."

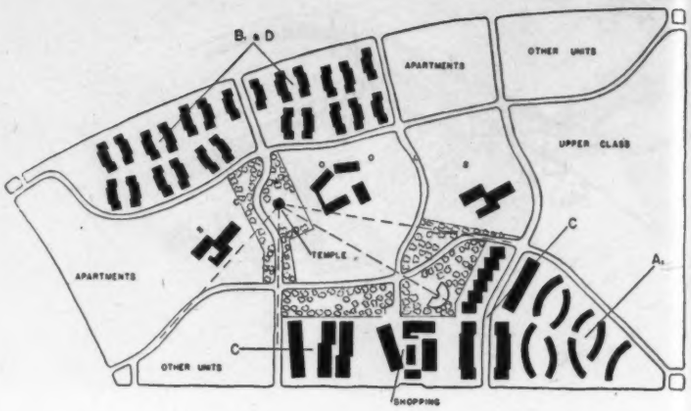
In putting forward these ideas, Nowicki was countering a long prevailing American tendency to seek deliberate variations to overcome the inadequacies of the gridiron plan and "the lack of diversity in the creation of modern architecture. We love irregularity because we have too much boring regularity around. Here the abuse of a notion is confused in our minds with the notion itself." But to him it seemed that a city "always has been and will be a 'modular problem' based on a repetitive function. This is the basic problem of a city. The plans of old cities of India, Africa, Greece, Rome, etc., were based on a regularity of design because there was a regularity of purpose. Every conscious planning effort was to create an order. The clarity of this order was always admired by posterity and comprehended in the same way as it was intended by the planner. The picturesque was introduced by time and not the planner. A perfect city was the result of time, and I am afraid no planner can make it so without the help of time. I feel that it would be a mistake to attempt to create a perfect city incorporating in it a notion of diversity that the perfect cities, as we know them, have. A logical and true city plan is always a modular diagram, expressing a certain philosophy and principle of life (true for a certain period) applied to specific conditions. The amount of sensitivity in applying the diagram will be responsible for legitimate variations. But the main objective should be order, not diversity." In the whole literature of planning, I cannot recall a page where so much has been said in so few words.

The concept of a clarified geometric order for the main outlines of the city plan, with its resultant functional flexibility, contrasted with a more subtle, humanistic approach to the details of the neighborhood, allowing for small contours in laying out a footpath, preserving a tree here, altering the axis of a group of houses to take advantage of prevailing winds or a view, in short, enriching the texture of the plan through a pliant sense of human need. In the second approach was "functional exactitude," with its sense of the

unique and the individual. In finding a place for both kinds of design within the new city Nowicki's theory of design went far beyond that of most of his contemporaries, above all, that of Le Corbusier, whose original sense of the intimate texture of daily life had been so lacking, and whose oversimplified handling of the entire city in terms of abstract spatial elements handled on a grandiose scale has had such a dehydrating effect upon housing and planning throughout the western world. In his planning, as in his architecture, Nowicki exhibited binocular vision, which brought together order and variety, logic and emotion, the universal and the local.

The main decisions about the plan of Chandigarh had been made before Mayer and Nowicki left for India, open to such changes as a fresh view of the site would bring. But when Nowicki arrived in the Punjab, it turned out that the work that was supposed to have been finished by the Indian bureaus simply had not been done: the staff from the chief engineer in charge down was demoralized and no adequate assistance was available. Plainly there was no possibility of doing the great tasks that had lured Nowicki to India, — working out in detail the layout of the great city squares and the design of the Capitol buildings. Though filled with anxiety promoted by the Korean war, which had just broken out, Nowicki accepted these frustrations and disappointments in a cheerful spirit. He spent the greater part of the summer, almost alone, planning a single superblock and carrying through, to the last detail, the plans and elevations of the houses. When he met Albert Mayer in Delhi, six weeks later, he amazed his colleague, himself no sluggard, with the sheer quantity of work he had produced — drawings "full of gaiety, almost as a cartoonist's drawings are," and "the flow of imagination through it all, as though the work and thinking had been quite unhurried, quite undistracted by the other complications of the Punjab situation," as Mayer put it. In all that he had done, as in his conception of the city proper, in its "holiday" aspect, Nowicki had an original contribution to make, not only to the immediate project but to town planning thought in general. In putting forth his ideas here I do not mean, however, to underestimate the fruitful give and take between the three architects responsible, or the extent to which their more intimate knowledge of the site would not, in the end, have led to further readjustments in the master plan and the siting of the public buildings.

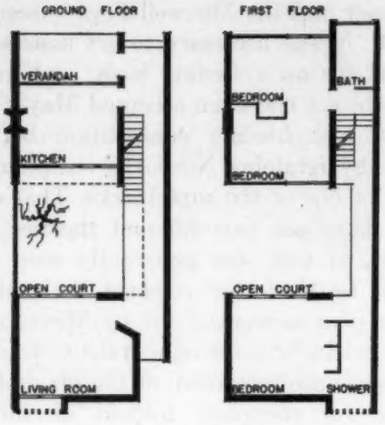
Samuel Butler used to say that the test of a writer is: Can he name a cat? The test of an architect is: Can he design a minimal dwelling house that will still show the quality of his mind? By that test, Nowicki's place as an architect would be established alone by his varied house plans for minimal income groups. In the general planning of the superblock, in line with his own analysis of the need for texture, Nowicki avoided both the obsolete continuous street pattern that dates back to the seventeenth century, and the repetition of formal cul-de-sacs, as used in Radburn. Instead, he



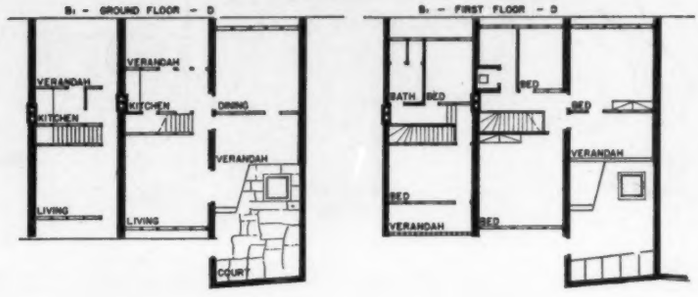
introduced the utmost possible variety in the grouping of the dwelling houses, in the treatment of their façades, in the succession of footways and open spaces that led from the dwellings to the more public activities of the neighborhood, the schools and the local bazaars. All these new designs, worked out to all but the last detail, provide evidence — no less striking than his stunning sketches for the Capitol building — of how much he had taken in of Hindu culture.

In none of these designs is there any reproduction of the outward forms of Hindu architecture: instead he had assimilated the spirit of the culture that had produced these forms, and he had translated that spirit into modern terms. Genius is the only word for that quick intuitive perception of the whole, the flash of creative synthesis that could fuse the regional and the universal in a new form. No one who examines these plans and sketches can doubt that genius is the only quality that could account for the results.

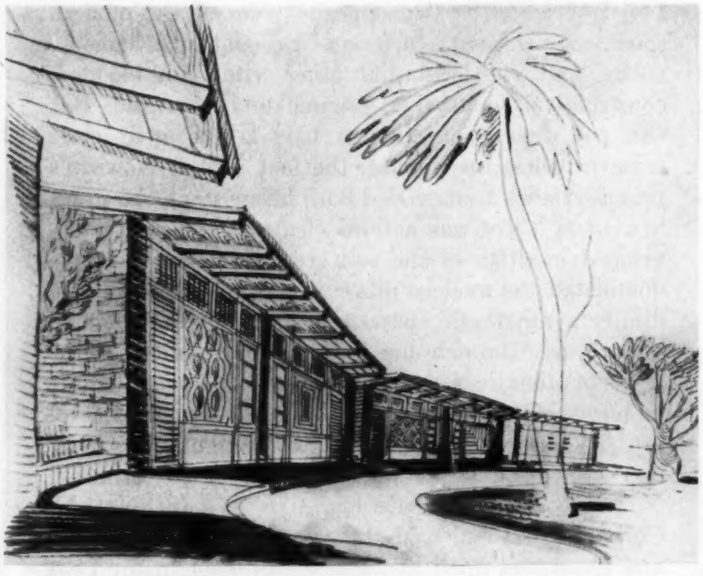
In a sense, Nowicki's Indian designs adequately speak for themselves; so that any interpretation of mine would be redundant. Yet I cannot resist pointing out one of his innovations in housing, which I think that the planners of future American housing estates would do well to ponder. Four years ago I looked at these plans without fully understanding their significance; then recently in the course of a fresh analysis of the problems of modern family life in relation to housing, I had the illusion of formulating a new answer to the problem of how to house people who need to exchange services with each other, and to have a common place for their little children to play in safely; how at the same time to recover that sense of intimacy and enclosure which some of the most desirable quarters in historic cities possess and that almost all open developments — whether modeled after Unwin or Le Corbusier — so deplorably lack. When I came back to Nowicki's Indian plans, in the course of preparing this article, I discovered that he had already outlined the answer: groups of ten or twelve houses, grouped like a bracket

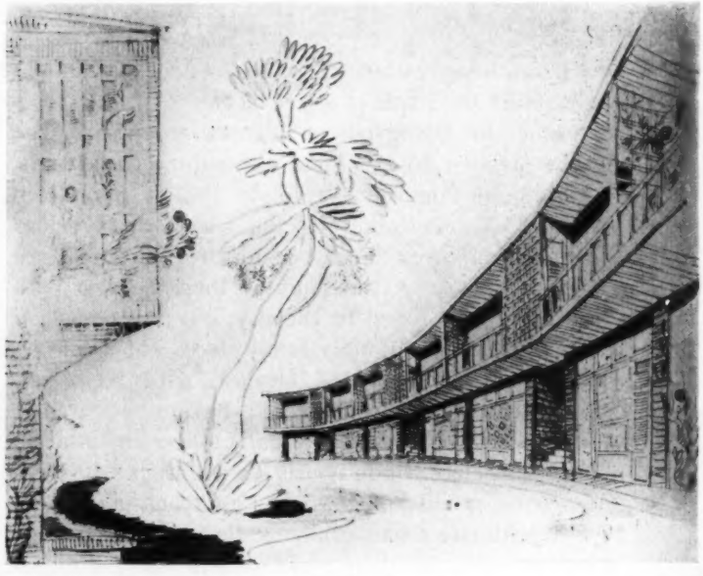


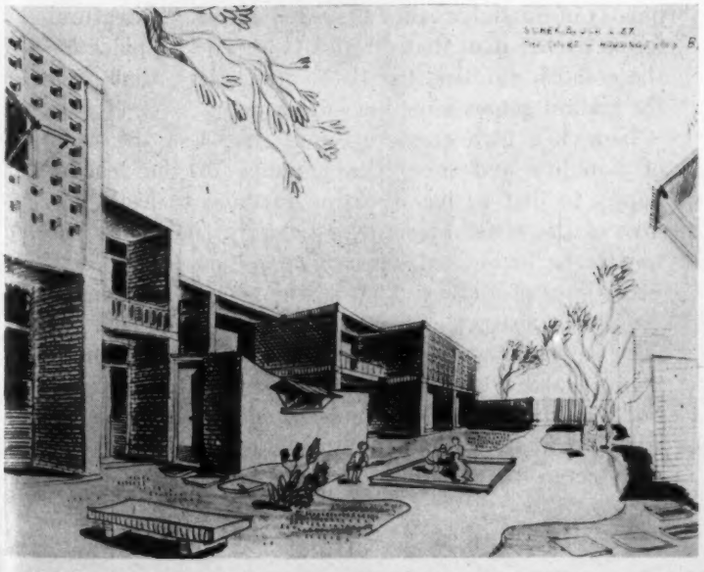
Superblock L 37, basis of Nowicki's scheme for Chandigarh, he designed in detail during his summer in India. He sought both order

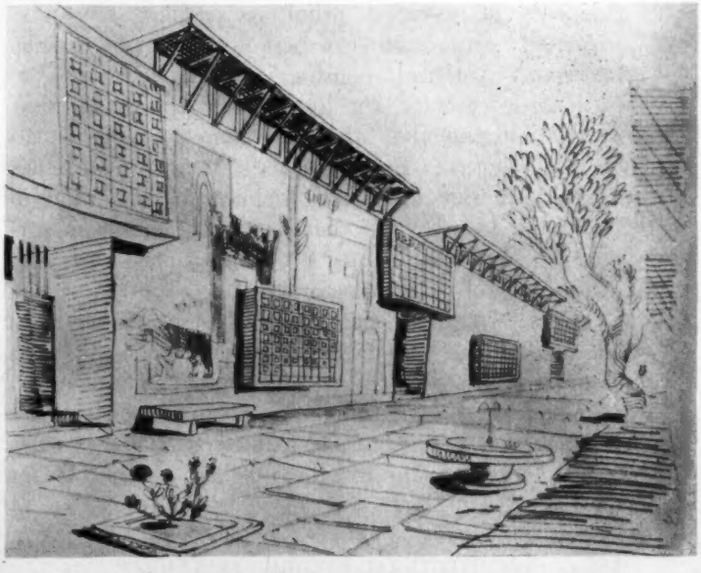


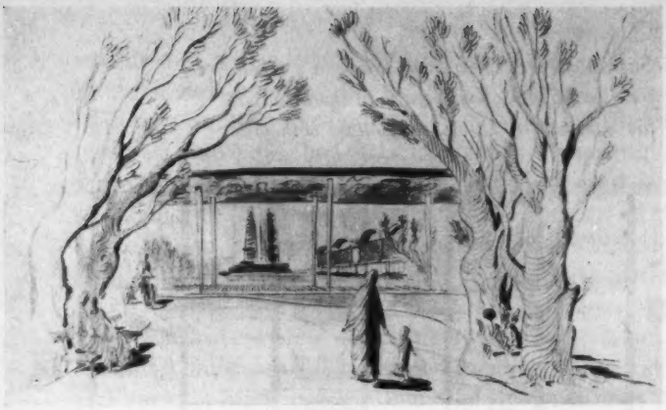
and diversity, but above all he worked toward the delineation of individual neighborhoods and a sympathy toward the Hindu's way of life. This sympathy can be seen in the plans of the dwelling units and in the character of the façades. The textures recall, but do not attempt to reproduce, the intricate ornamentation of the Hindu house

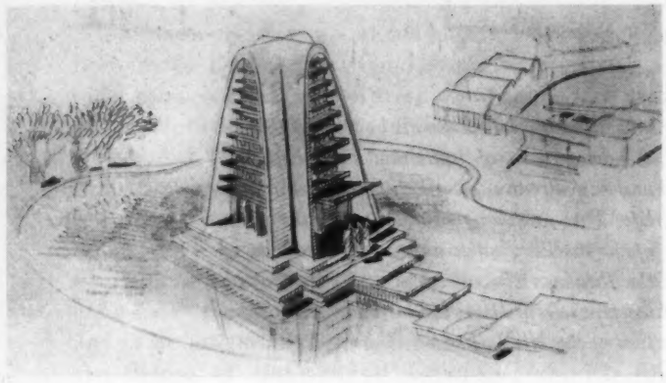












MATTHEW NOWICKI

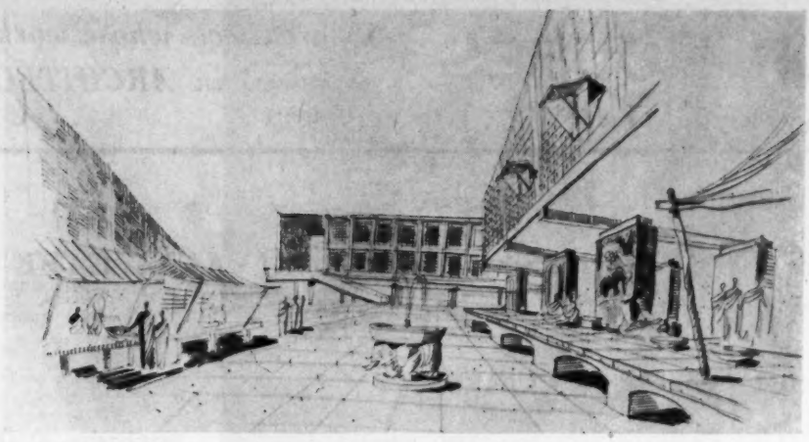
or a parenthesis, within which was a pool of common space, under the shade of a tree or two.

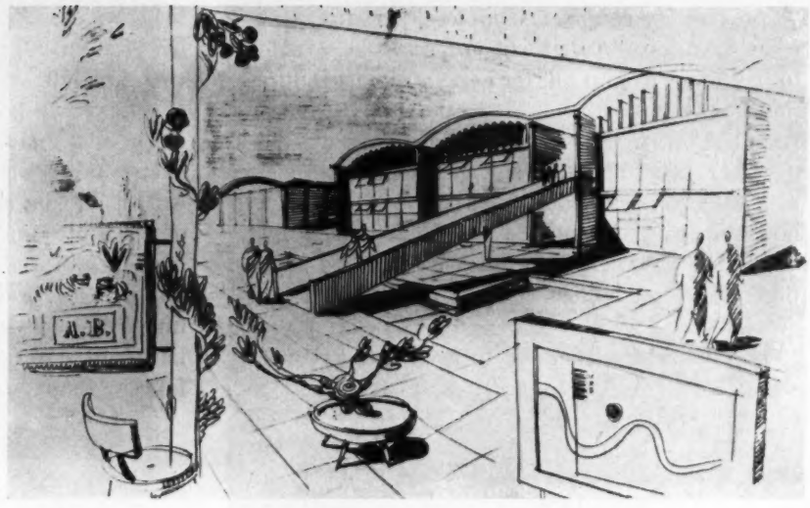
So much for the layout of this new group: one that gives expression to the most elementary social unit, the group of families, as Gaston Bardet puts it in his excellent description of the successive echelons of occupation, from family groups to the city as a whole. But look at the plan of these houses, with their inner court, open to the sky, where so much of the life of an Indian family takes place; and not least, note the character of the façades, with their self-ornamented openings which recall, but do not attempt to reproduce, the intricate handicraft ornamentation of the upper class Hindu house. To emphasize the fresh and original quality of Nowicki's approach here is not to underestimate a similar change that other architects, in contact with the more vivid esthetic and emotional responses of so-called primitive peoples, have experienced: witness some of Sert and Wiener's designs for South American housing. Indeed, is it not the fresh sense of color, the liveliness in the detail, that partly redeems the otherwise clumsily procrustean interior plan of Le Corbusier's famous Marseilles habitation? But there is a richness of invention in Nowicki's Indian work that has surely not been surpassed — and usually not even approached — in any of the work of his contemporaries.

The aftermath of this lonely charette at Simla in the foothills of the Himalayas was tragic, both as respects Nowicki's work and his life. The contribution that he had made to India — much to his spiritual enrichment, no doubt, but also at bitter personal sacrifice — was tossed aside by the officials responsible for Chandigarh. The excuse for this shift from an American team of architects to a French and British team — Le Corbusier and the Maxwell Frys — seemed reasonable enough: it was necessary to get assistance that could be paid for on a sterling basis; and in the shiftover, Le Corbusier had even accepted Mayer's suggestion of admitting a friendly competition between the two teams, by retaining Nowicki's completely worked out plans for one of the superblocks. That decision, which would have put two different theories of planning to a practical test, was apparently soon forgotten; and though Le Corbusier retained the main lines of the master plan as worked out by Mayer and Whittlesey and Nowicki, he re-introduced the concept, as antiquated as it was anti-functional, of the old fashioned corridor avenue for shopping, instead of the concentrated markets planned by Nowicki for the core of the neighborhood. (In a few short years, Le Corbusier seems even to have forgotten the C.I.A.M. conference on the function of the Core.) As it turned out, then, the trip that cost Nowicki his life was to be a vain one.

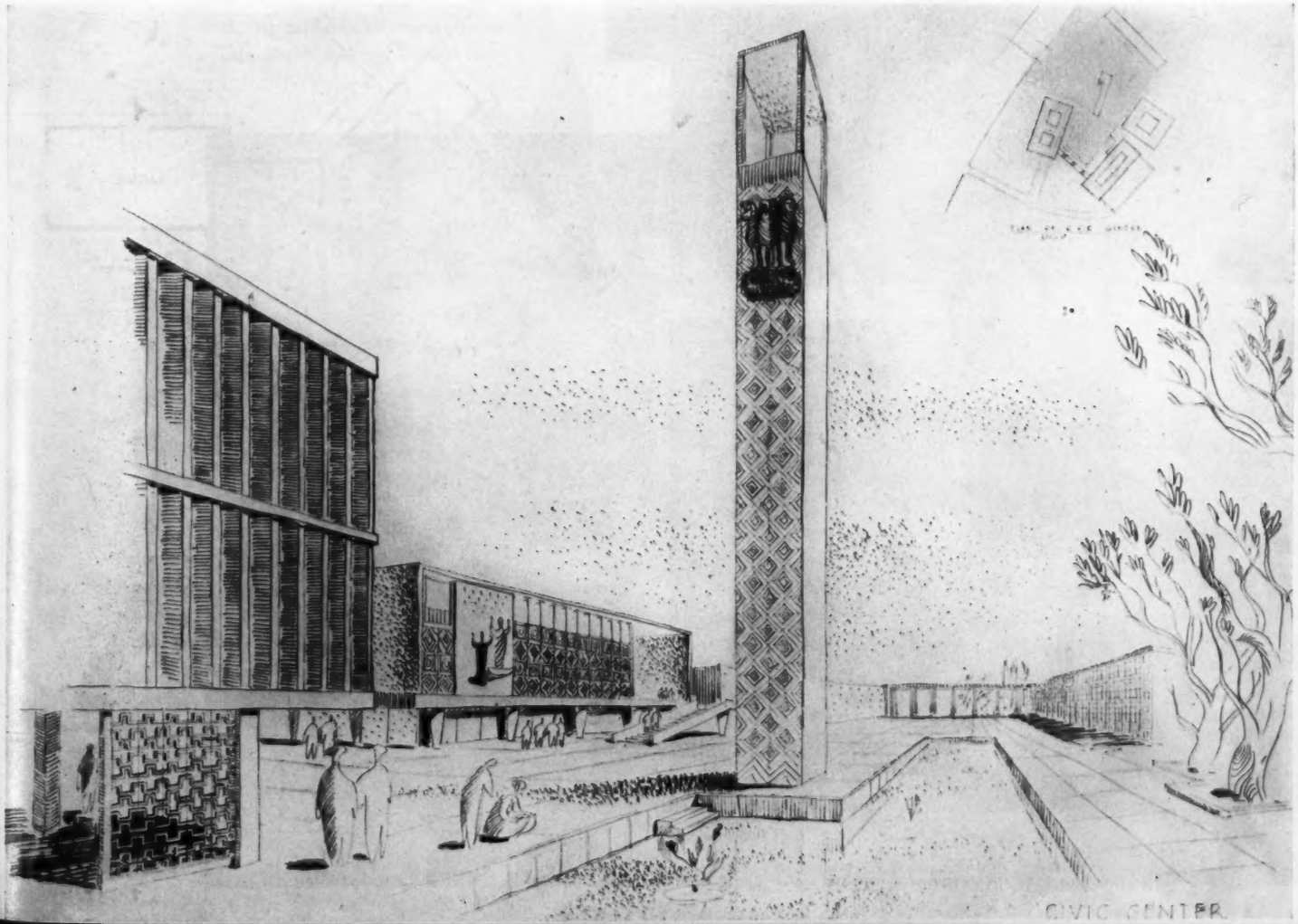
This outcome of Nowicki's India work is all the more ironic because, if one were forced to put in a word the new synthesis which Nowicki had achieved, one would say that it was a union of Le Corbusier and Frank Lloyd Wright, the two opposite poles of the modern spirit, one formal, cartesian, rational, mechanistic, cubist and classicist; the other vital, full-blooded, constructively inventive, organic and romantic. But this pat description, though true as far as it goes, is nevertheless inadequate: the fact is that Nowicki's promised work transcended both his masters. For in his new unity there was a third element, imperfectly developed in either of the two great geniuses who have dominated the modern movement — the capacity of a deeply sympathetic, passionate, and loving man to understand, through his own joy and suffering, the needs of other lives, and to interpret those needs freshly in terms of forms that do justice to every aspect of life. To nature, as interpreted by Wright, to science and the machine as interpreted by Le Corbusier, Nowicki added the missing term — man. Not Le Corbusier's lay figure, Modulor, but the creature of flesh and blood and mind and spirit: the whole man. That quality of mind, a quality bestowed on his architectural forms by the man that Nowicki was, had no place for the childish vanities, the flatulent egoisms, that even the highest genius sometimes displays.

Nowicki's high creative competence was the child of humility and love: the humility of the teacher happy to find he has always something to learn, the love of the artist whose eyes tenderly transfigure the objects he loves, and whose imagination brings forth every ideal possibility. That is why those who examine Nowicki's character, his education, and his life experience will find in it a refreshment and a replenishment — and a challenge to their own further growth. So, too, those who look understandingly on his work will find in it, if I am not mistaken, the clue to an architecture that is still to be born. — THE END





Opposite page: Nowicki's inventiveness, also his facility at drawing, show in the design for the Temple. Top right: the shoping center keeps to the form of the bazaar. Right: the "middle" school, located near the temple at the center of the superblock. The Civic Center, a "clue to an architecture that is still to be born"?



FOUR HOUSES

By architects whose work has not previously appeared in ARCHITECTURAL RECORD

VACATION HOUSE STRESSES PRIVACY, EASE OF MAINTENANCE

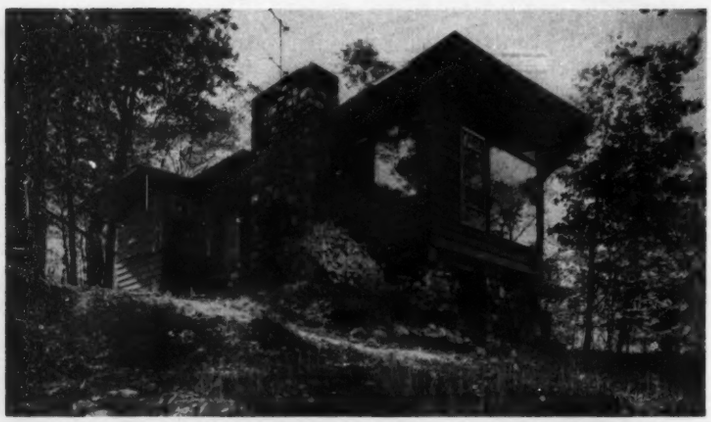
Purdys, N. Y.

Gerson T. Hirsch, Architect

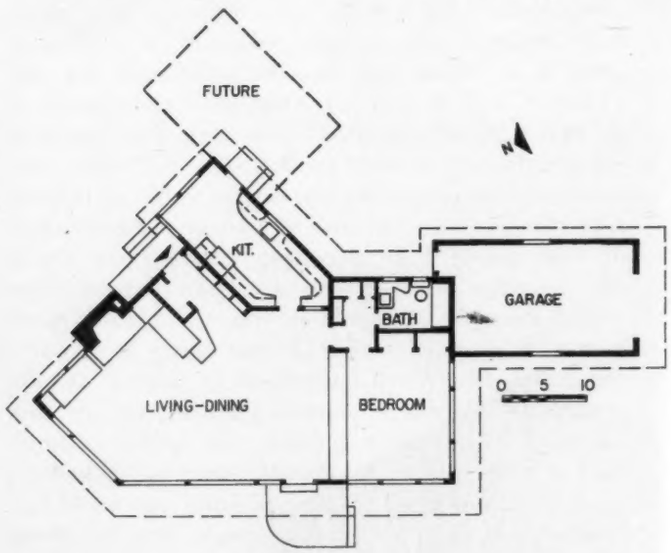
THE OBJECTIVE here, says the architect, was to provide "a compact, complete, perhaps somewhat luxurious 'apartment' to serve as a place to 'get away from it all' for periods of varied duration." The property — 12 acres of woodland — was ideal for such a purpose, and the chosen building site, at the highest point, offered a wide view over reservoirs and rolling hills. That chosen site, however, was some 600 ft in from and 160 ft above the road; an extra acre of land had to be purchased and a 2000-ft road built to make it accessible.

The house was planned to give every room a share in the views to north and west, and to emphasize, at the owners' request, the feeling of being at the upper edge of a sharp drop. In both living room and bedroom, accordingly, windows on the view side are almost full room height.

Everything possible was done to reduce housework and maintenance costs. All furniture but chairs, tables and beds was built in, with cabinet work held to a minimum by the use of stock sizes of birch plywood. Birch plywood with a flat varnish surface was used for interior walls in the two main rooms, and brought to jamb edges to eliminate interior trim members. Walls in kitchen and bath are covered with water-repellent washable fabrics. Floors are oak plank, waxed.



Joseph W. Molitor



Emphasis on location of house at top of ridge is strong on exterior as well as interior. Flagstone terrace adjoins main entrance for obvious topographical reasons

As much furniture as possible is built in, main unit being storage wall between bedroom and living room; this contains, among more usual items, a revolving TV set for use in either of the two rooms

Kitchen narrows at serving end, has good counter space flanking door to dining area. Below: living room ceiling slopes upward toward view

Chas. R. Pearson

PRIVACY AND OUTDOOR LIVING SPACE ON A CITY LOT

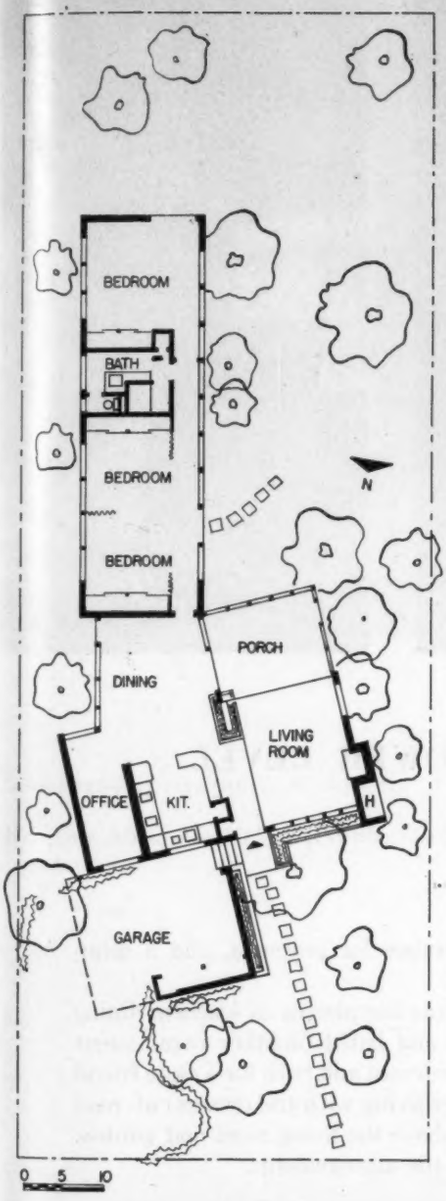
Seattle, Wash.

Seth M. Fulcher, Architect and Owner

AT A COST of less than $10 a sq ft, the architect of this house met his own requirements for privacy and integrated indoor-outdoor living areas on a city lot measuring only 60 by 128 ft. Costs were kept down by an almost-square plan, variation of stock-type details, and the use of some lower-grade materials; privacy was secured by placing the house toward the front of the lot and using it, along with planting and cedar fencing, to shield the garden area at the rear.

Note on the plan below how the positioning of the study door makes the study suitable for use either as the owner's office or as an extra bedroom.

Economical square plan necessitated monitor windows for light in interior



Jack Jessee

HOUSE PLANNED FOR FLORIDA LIVING

Daytona Beach, Fla.

Craig J. Gehlert, Architect and Owner

HERE the architect-owner based his plan and design "upon a way of life suited for living in the state of Florida." He chose a heavily wooded 50 by 140 ft site — the average small lot in his area is only 50 ft wide — and settled on a T-shaped plan as the ideal for maximum street façade and maximum extension through the lot. The house was planned to take advantage of the welcome breeze from southeast in the daytime and southwest at night, and to shut out the unwanted north winds; the angling of the living areas at the front of the house not only helped in this respect but also increased the privacy at the rear of the lot.

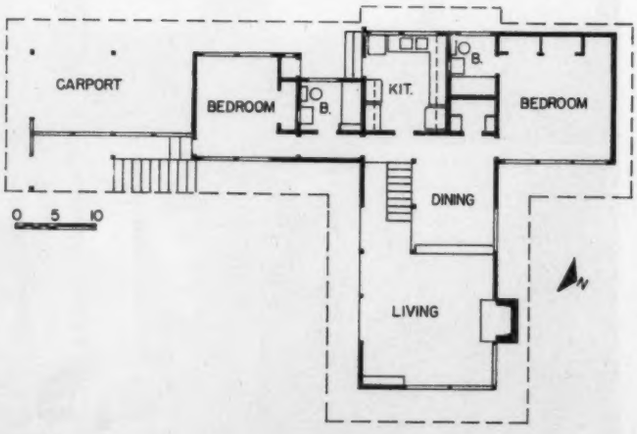
Ernest Braun

HILLSIDE HOUSE DROPS LIVING ROOM TO LOWER LEVEL

Sausalito, Calif.

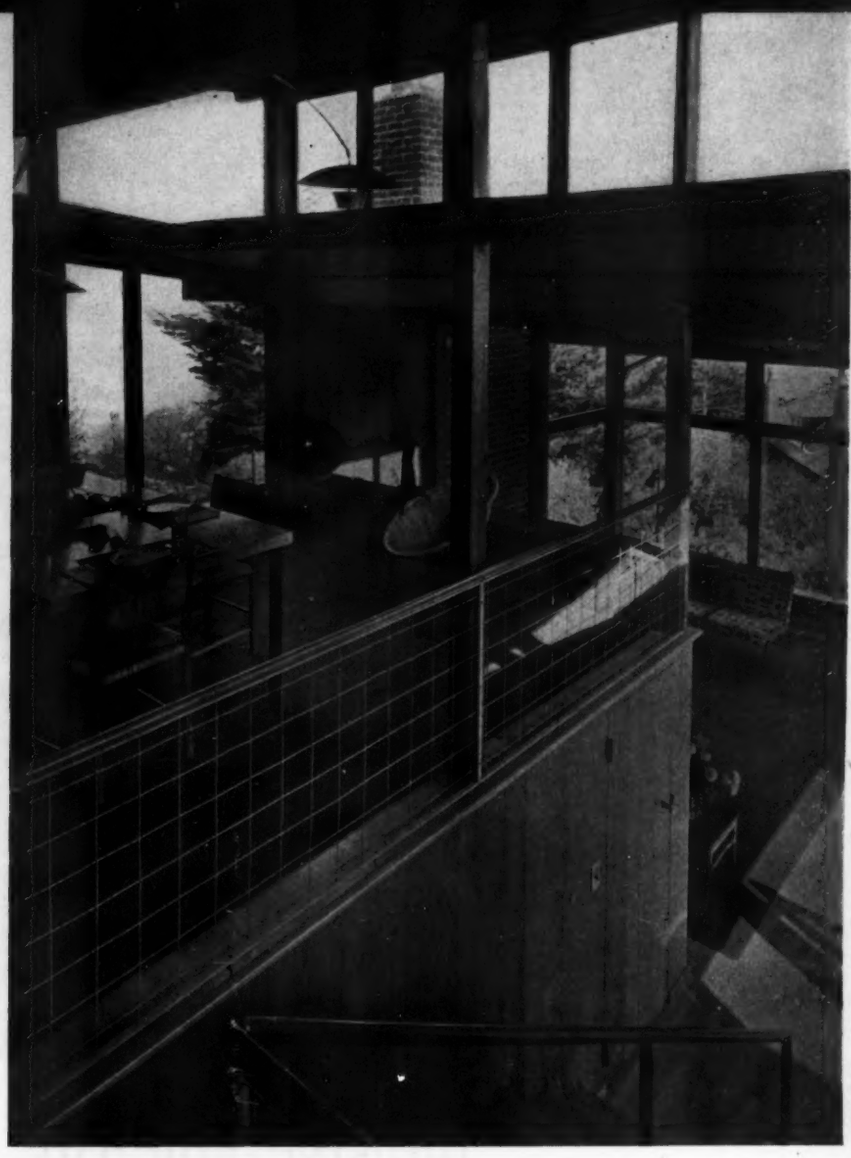
A SMALL, STEEP, triangular lot with roads on two sides and a neighboring house close by on the third, plus a panoramic view to the east, was the chief problem in the planning of this house in the San Francisco Bay Area. The owners, proprietors of a seed and nursery company, enjoy gardening and wanted a level garden area if at all possible. They also requested ample parking space, ground-level entrance for groceries, and a minimum of stairs.

The solution was the placing of kitchen, dining room, bedrooms and baths (another requirement was a separate bedroom and bath for a close friend and family helper living with the owners) at road level, some 6 ft above the living room and garden. The owners like the arrangement.



Schubart & Friedman, Architects

Mr. and Mrs. Fred C. McNabb, Owners

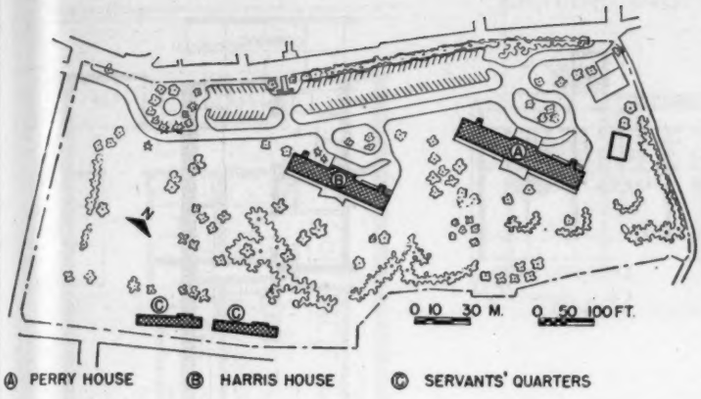


Change in level between living room and kitchen-dining area, usually not too successful, here has worked out very well, the architects report. It certainly has increased feeling of spaciousness

Prevailing wind from southwest indicated a southeasterly garden and terrace, even though this required main entrance from across terrace, with possible loss of privacy. Main entrance (right) thus leads directly into living room and to foot of dining room stairs; since terrace gate is equipped with telephone and buzzer, arrangement has proved not only workable but "very hospitable and pleasant." Architects say that only changes they and owners would make in plans would be addition of a third bedroom and more openness between kitchen and dining area

HOUSING FOR THE UNITED STATES EMBASSY ST

F. Murasawa



Antonin Raymond & L. L. Rado, Architects

David L. Leavitt, Associate in charge

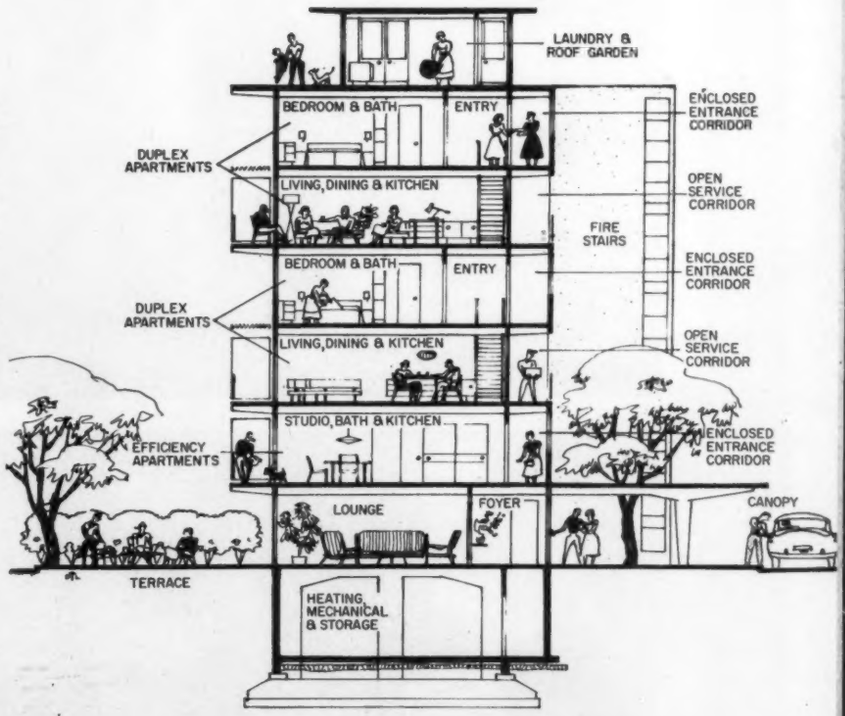
Paul Weidlinger, Structural Engineer

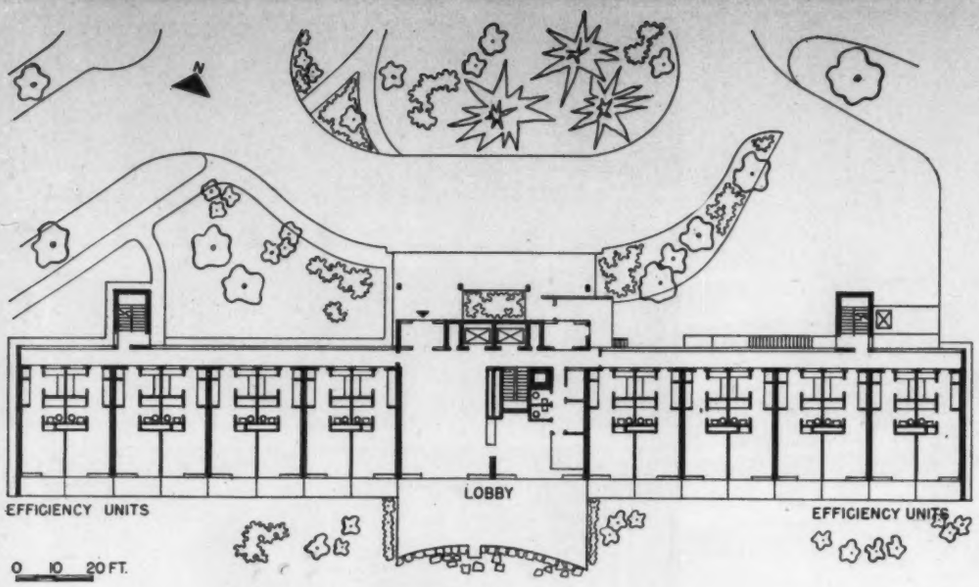
Morris Shapiro, Mechanical Engineer

STAFF IN TOKYO, JAPAN

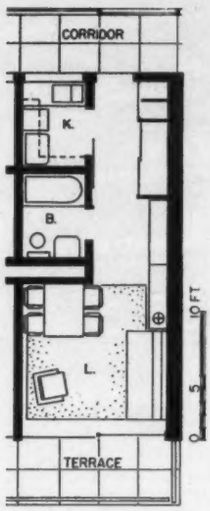
FAVORABLY LOCATED on a hill and oriented south for view, sun and breeze, these are the first true multi-story reinforced concrete structures in Tokyo — the conventional system being a concrete covered light steel frame. On poor bearing and tall for Japan, the structural design had to cope with seismic forces. The solution is a series of box frames formed by the through party walls which support the floor system. Acting as cantilevers six to seven floors high, the frames serve both as shear walls resisting lateral shock and as support against longitudinal vibration. The horizontal ribs support the floors and become also a stiffening membrane. Under vibration tests simulating earthquake conditions, the building exhibited favorable dynamic characteristics.

The section at right shows the overall organization of the six floors, in which the top four are devoted principally to duplexes, as described more fully on the following pages. Each apartment has a terrace facing south, separated from its neighbors by gaily colored dividing screens.





1ST FLOOR PLAN



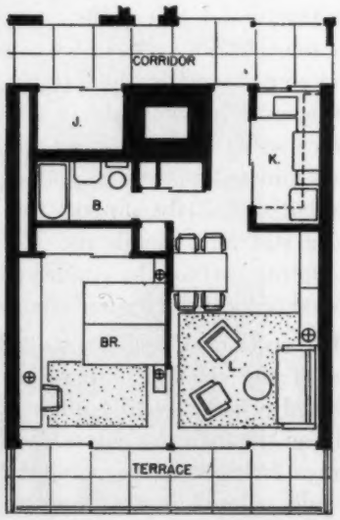
EFFICIENCY UNIT

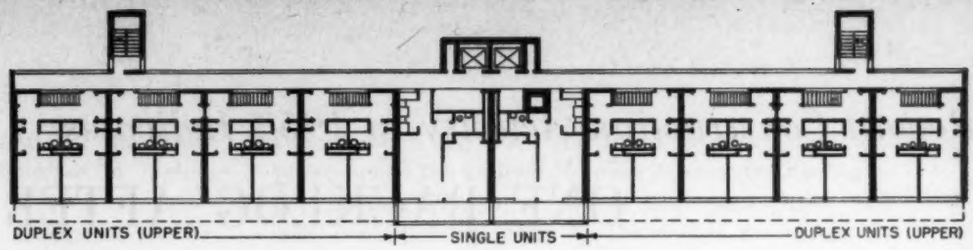
First floor, plan at left, is devoted to efficiency units, as is the second. Planned for bachelor occupants, the units contain a living-sleeping room, kitchen and bath. Photo at left shows the convertible bed unit, which was, as all the furniture, designed by the architects for manufacture in Japan

SINGLE BEDROOM UNIT

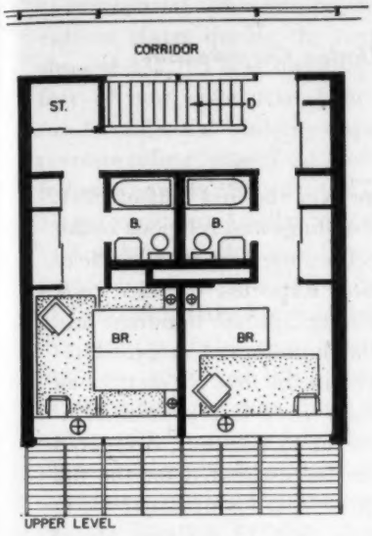
The lower two photos at left and plan below show the single bedroom unit, which is located in the central two bays, above the lobby, on all floors. The sliding door between bedroom and living room provides daytime openness and nighttime privacy. Wall finishes for all apartments are largely of plywood

F. Murasawa

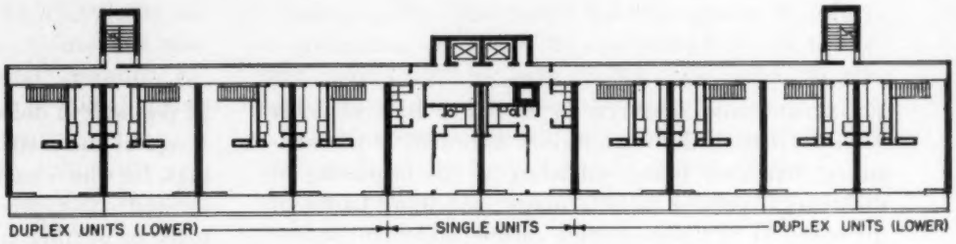




4 TH FLOOR PLAN



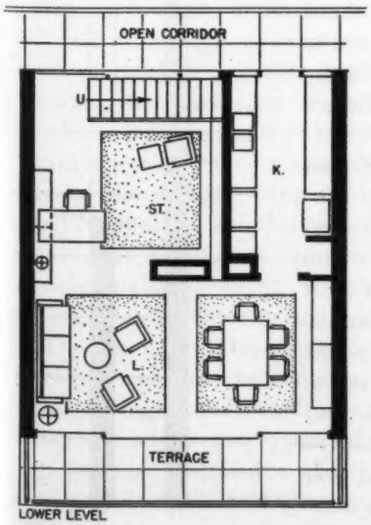
UPPER LEVEL



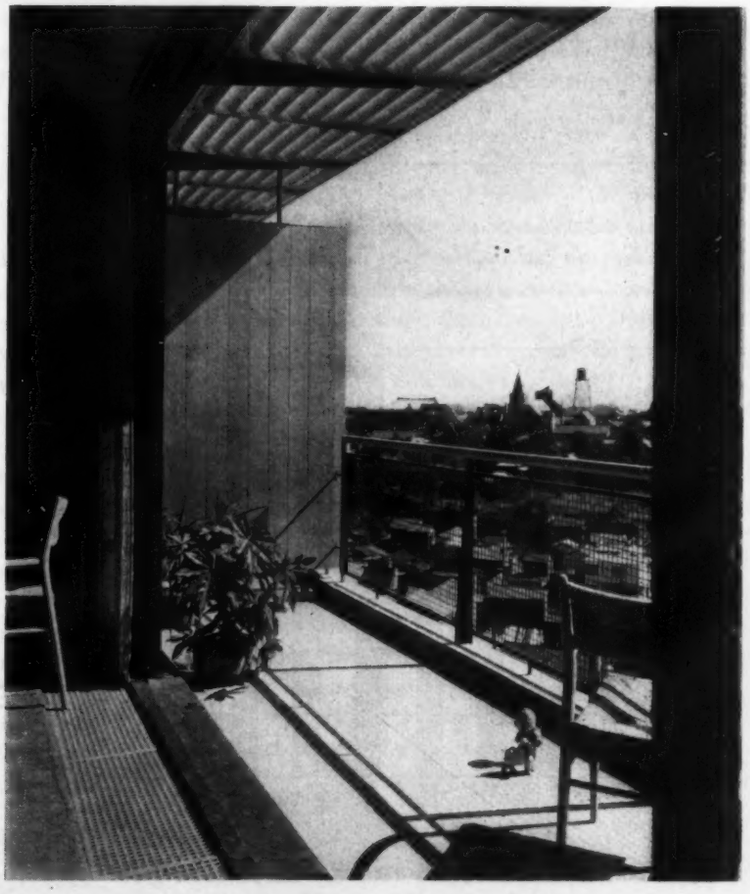
3 RD FLOOR PLAN

DUPLEX UNIT

Unusual duplex apartments occupy the third to sixth floors, plans above, except for the single bedroom units in the center bays. Tenant entrance is from an enclosed corridor at upper level, plan above, so that bedrooms may be entered without disturbing the living area, and also to separate servant and occupant traffic. The open servants' gallery at lower level, plan below, provides entrance and delivery into the kitchen and cross ventilation for this level. Flexibility which yields units ranging from one to four bedrooms in size has been ingeniously furnished. By removing knockout panels and adding doors, see plan, bedrooms can be added or subtracted almost at will



LOWER LEVEL



Record Construction Activity in 1954 Indicates

ONE BACKLOG AFTER ANOTHER

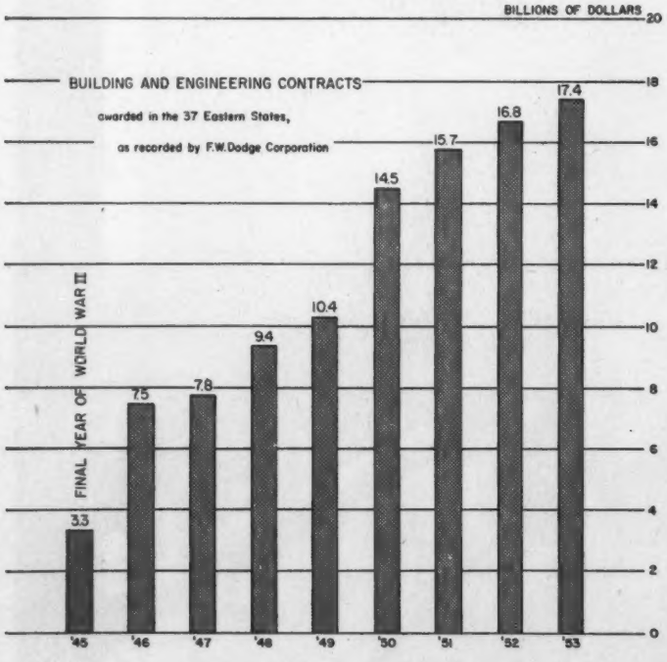
By Thomas S. Holden, *vice chairman, F. W. Dodge Corporation*

CONSTRUCTION ACTIVITY in the first half of 1954 exceeded all the expectations indicated in the estimates that were being published at the beginning of the year; it proved to be a major sustaining factor of the economy in a period when various important industries and businesses were suffering fairly serious declines and inventory adjustments. The six months' dollar increase in contract volume, amounting to 17 per cent, contrasts very favorably with the 3 per cent overall decline for the full year as anticipated in F. W. Dodge Corporation's earlier advance estimates. If, as seems likely, the entire year 1954 shows an increase in dollar volume of contracts over last year, this will be the ninth consecutive year of contract volume increase. This has never happened before since construction statistics were first recorded. It is of interest to analyze the record and see just what has produced the present highly favorable situation.

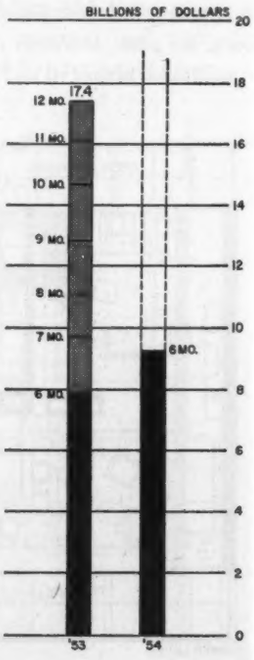
Non-residential building volume has followed the pattern expected for this year, with rather higher volumes than were anticipated in the year-end estimates. Commercial building, educational and science buildings and social and recreational projects were all expected to increase over 1953 and have done so with quite substantial margins. School building contracts, which have had a practically continuous rise since the end of the war, continued to boom with an increase of 27 per cent in dollar volume over the first half of 1954. Hospital and institutional buildings and religious buildings, for which moderate declines were expected, instead showed substantial increases. Expected declines took place in manufacturing buildings, public buildings and miscellaneous non-residential buildings. Combined results of these trends produced in the first six months an overall dollar volume increase over last year in non-residential building contracts of 15 per cent, compared with a modest 2 per cent decline estimated for the full year. New non-residential floor space contracted for in the first six months ran more than 13 per cent ahead of last year, compared with the 1 per cent increase indicated in year-end advance estimates.

Contracts for heavy engineering projects ran somewhat behind last year in total volume during the first four months of this year, and only began to catch up in May. The six months' cumulative total was nearly 10 per cent over the figure for the corresponding period of 1953. In the Dodge estimates for 1954 heavy engineering contracts were put down for a 7 per cent increase.

The big surprise has been the behavior of residential building. This highly important category of activities was quite generally expected to decline this year to something like 10 per cent under last year's total volume. What actually happened in the first half year was a



If the year 1954 winds up with an increase over 1953, the postwar period will have achieved nine consecutive years of contract volume increase, a record without previous precedent. At the right is shown a progress report on 1954; with a lead of 17 per cent over 1953 at the end of the first six months, the prospect for a sizeable margin of increase at the end of 1954 seems very good indeed — As the RECORD goes to press the July contract total is available; with a 2 per cent increase over July 1953, it brings the total for the first *seven* months of this year up to $11,088,000,000, just a trifle behind the first *eight* months of 1953; as of July 31 the lead over last year was better than 14 per cent.



moderate decline in new dwelling units of the lower price ranges, and a considerable increase in higher priced units.

Residential contracts recorded by Dodge for the 37 eastern states during the first six months of this year showed 231,204 new dwelling units, 408,000,000 square feet of new residential floor space, $3,980,691,000 in total residential building expenditures. Gains over the corresponding period of last year were recorded as follows: new dwelling units 17 per cent; new floor space 17 per cent; total dollar value 22 per cent.

Numbers of new non-farm dwelling unit starts reported for the entire United States by the U. S. Bureau of Labor Statistics were as follows: 572,000 for the first five months of this year, compared with 581,400 for the first five months of 1953. These figures indicate decline of less than 2 per cent. Since the trend of housing starts was markedly upward in the second quarter of 1954, there is a fair expectation that this year's total housing starts may run somewhat ahead of last year. The apparent discrepancy between the Dodge figures and the Bureau of Labor Statistics figures is due to the fact that Dodge has only partial coverage of housing units in the lower price ranges and these are the ones that have lagged in total volume this year. The average dwelling unit reported by Dodge this year had a recorded construction cost of $11,815.

Of major significance is the fact that this year's spectacular increase in contract volume is so largely due to increased volume of work to be privately financed. In spite of some politically inspired agitation for stepped-up public works expenditures, the national administration wisely adopted no emergency measures of this sort, but followed a policy of encouraging private enterprise by tax reductions and a moderate easing of credit. In the first six months of this year contracts for publicly financed construction increased some $238,000,000 over the first half of 1953, but during the same period private building and engineering contracts increased by some $1,105,000,000. During the entire postwar period contracts for privately financed building and engineering projects have accounted for practically two-thirds of the dollar total.

It is of interest to examine the question of why this year's residential building starts have done so much better than everyone expected. The expectation of reduced housing volume was based largely on the fact that the number of marriages has been on the downtrend and that the estimated number of net new household formations has also appeared to be falling off. These two related factors would tend to a drop in demand for basic minimum shelter requirements. What appears to have been underestimated is the potential demand for bigger and better housing accommodations which is resulting from increased size and increased prosperity of the average American family. Another factor that has not been adequately appraised is the present greater ease of financing acquisition of new homes by present homeowners. It is interesting to recall that it was just about twenty years ago when the Home Owners Loan Corporation and the Federal Housing Administration began popularizing 20-year amortized home mortgages, and that consequently many of the earlier mortgages financed under this plan must have been paid off; the number of homes owned free and clear should be increasing rapidly. This should make for greater flexibility in exchanging old homes for new ones. It is safe to say that current need for basic shelter is no longer the all-controlling factor in housing demand.

It has appeared difficult for people to grasp fully the magnitude of the current rate of growth of the U. S. economy and to visualize the nation's expansion potentials. Growth and change have always been the strongest factors for creating demands for new construction in this dynamic society of ours. Right now the factors of growth and potential change are stronger than ever before; the possibility of all-out shooting war would seem to be the only potential retarding factor in the way of realizing a bigger and more widely distributed prosperity than this or any other country ever enjoyed up to this time.

To measure the current situation with respect to rates of growth and change, it is convenient to use the year 1940 as a starting point. That was the year in which the American people, after the trials and problems of the great depression, had painfully regained the level of living standards that had prevailed in 1929.

Between 1940 and 1953 the country's population increased from 132,000,000 to 160,000,000 or 21 per cent. Now an economy that increases by 21 per cent in number of consumers requires at least a 21 per cent increase in output of goods and services, if the same standard of living is to be maintained.

The 1940 standard of living was not merely maintained, it was vastly improved. Between 1940 and 1953, while population increased 21 per cent, the following changes took place: 30 per cent more persons were gainfully employed in producing goods and services, the average gainfully employed worker turned out 41 per cent more product than his 1940 counterpart did, and the result was an 83 per cent increase in total output of goods and services. The 160,000,000 consumers we had in 1953 acquired on the average 34½ per cent more goods and services than did the average consumer in 1940.

This vast increase in production and improvement in living standards took place in a period during which the country out-produced the rest of the world in military goods to win a global war and later undertook a vast defense program.

There is no indication that current growth of the economy is being retarded. The number of births in 1953 reached an all-time record of 4,000,000. This meant a net population increase of some 2,700,000 persons; the economy gained some 225,000 consumers every single month. Since V-J Day the annual increment for the country has been greater than the present total

(*Continued on page 282*)

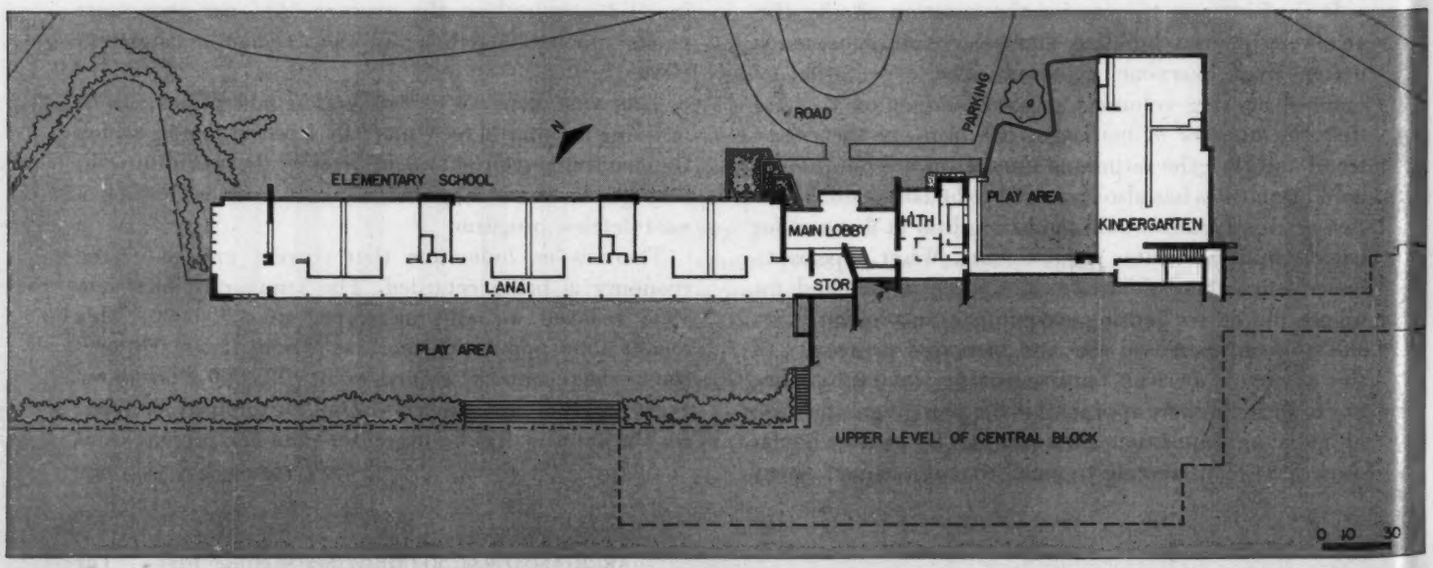
MODIFIED RIBBON PLAN USED FOR ZONED SCHOOL

High & Elementary School, Laupahoehoe, Island of Hawaii

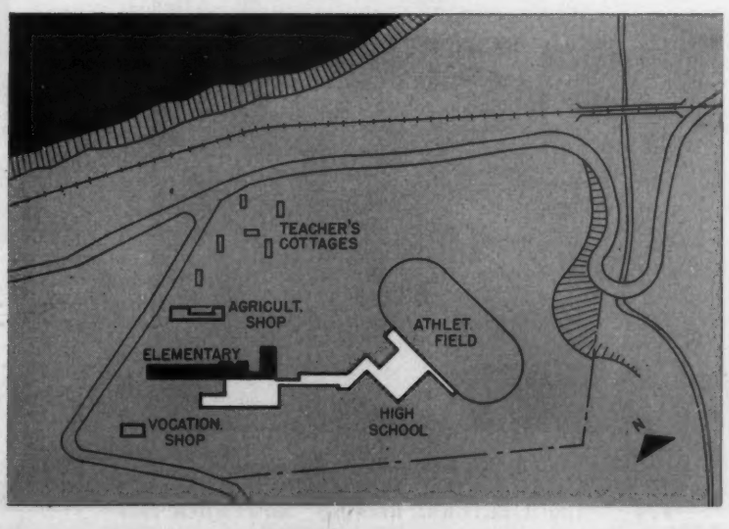
Philip Fisk, Johnson & Perkins, Vladimir Ossipoff, Alfred Preis, Associated Architects, A.I.A.; Alfred Preis, Coordinator

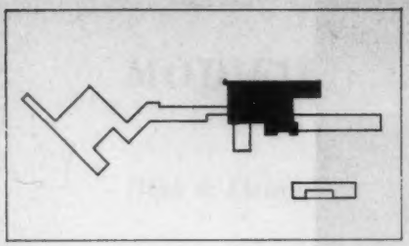
SITE AND CLIMATE played an unusually large part in the design and plan of this new school on the southernmost of the Hawaiian Islands. The school is located midway between two plantation towns and high on the windward slopes of the island. Brisk trade winds from the northeast blow in across the ocean for some 96 per cent of the year; heavy storms from the southwest occur occasionally, and moderate earthquakes are frequent; the average temperature range, both daily and annual, is from 68 to 82 deg., and the average rainfall is over 110 in. All construction materials except surf-ground lava rock and ohia, a native hardwood, had to be shipped in; transportation of bulky materials such as prefabricated roof trusses was impossible on the then-existing road from Hilo, the nearest port. Wood construction wherever possible was clearly indicated, but under the new Building Code areas for wood construction were limited and had to be separated by open spaces or fire-resistant walls. The heavy rainfall indicated that a concentrated floor plan would be most feasible, but the steep contours of the site and the necessary reservation of the flattest portion for the athletic field made a ribbon plan following the contour lines the most logical.

R. Wenkam



Above: play areas for smaller children are walled in for traffic safety. Right: elementary school classroom. Below: main entrance. Opposite page: elementary school wing





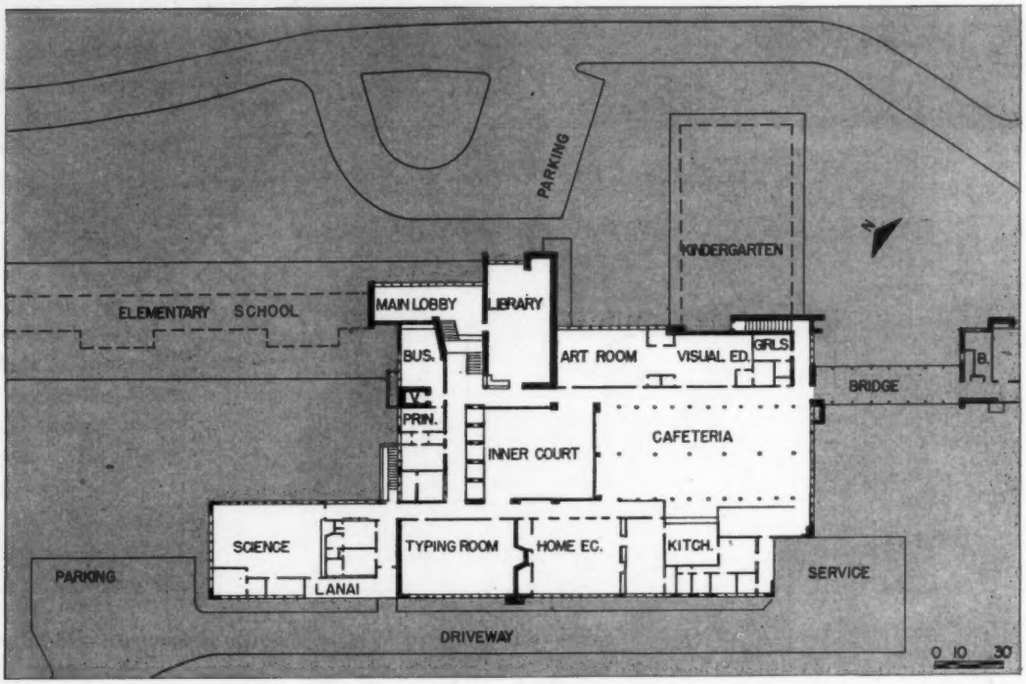
Entrance lobby (right) is in central two-story portion of building, which serves as fire barrier between classroom wings; health rooms (door in center of photo) open to lobby, thus are directly accessible from kindergarten and elementary school as well as approach road. Library (below), cafeteria (center), assembly patio (opposite page) and special classrooms form upper-level community center core midway between classroom wings, easily isolated from general school rooms for adult education and civic functions

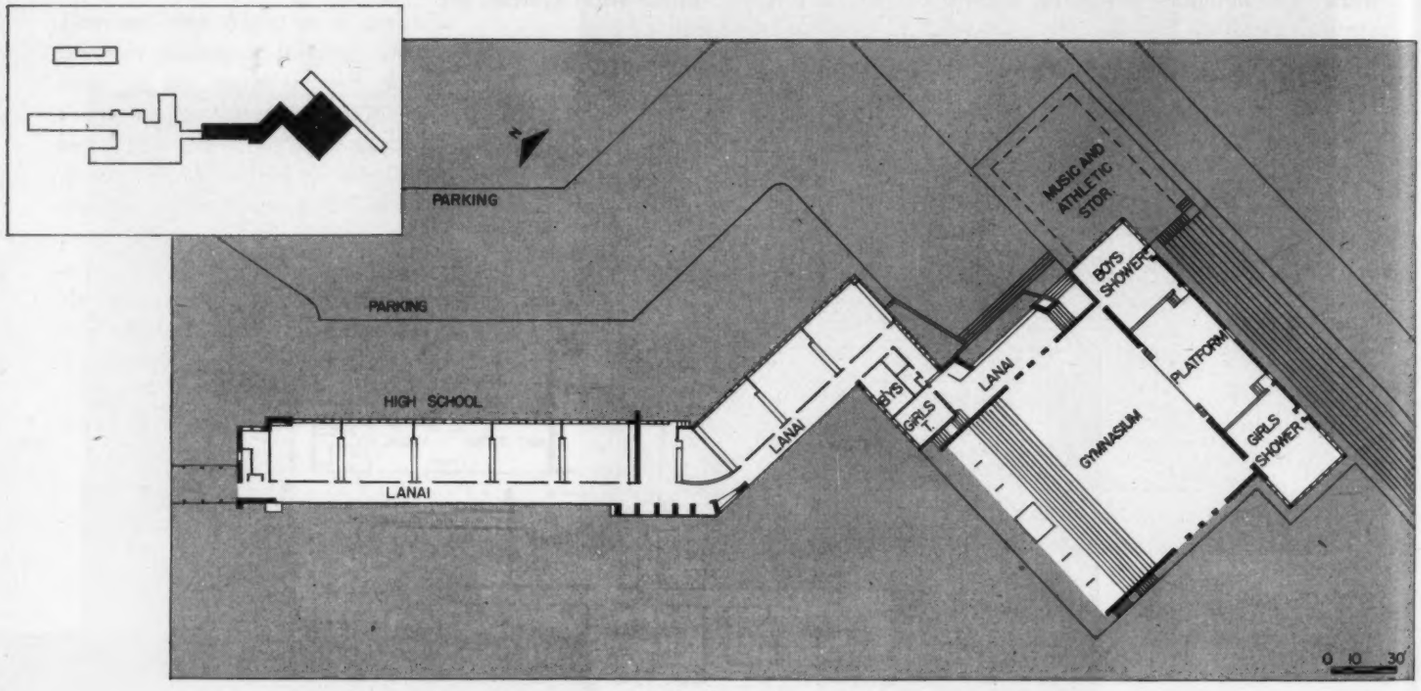
R. Wenkam

To minimize distance and facilitate circulation, the school is divided into three units: a lower-level elementary and kindergarten wing (plan and photos, pages 172–173); a central two-story core (opposite page and below) housing administrative offices and rooms used by both elementary and high schools and, after school hours, by the community for meetings and adult education; and an upper-level high school wing (pages 176–177).

Because of the transportation difficulties, tide-rounded boulders from the beach at the foot of the site were used for the reinforced concrete masonry work; the boulders, replacing almost 75 per cent of the volume of concrete, were allowed to protrude and create a casual pattern. Form work was prefabricated and re-usable. Roof trusses were site fabricated, as was all cabinet work. Exterior wood walls of rough fir T & G were termite-treated, and all trusses and cabinet work received a fire-retardant priming coat. Flooring is of integrally colored concrete on grade, of varnished fir elsewhere.

Over-all cost of the school was $850,382, including $11,00 for the site; the actual building cost was $820,382, or $15.23 per square foot, excluding the architects' fee but including all kitchen equipment, the intercommunication system, etc.





High school wing is connected by covered bridge (below left) with upper level of central core which houses special classrooms such as home economics and art (top of page). Athletic field is at end of wing. Vocational shops have separate building (see plot plan, page 173)

R. Wenkam

Top right: all lanais are in wind shadow of classrooms; those in high school wing serve only for sheltered circulation. Center right: windows are suspended from roof structure and protrude out over parapet, allowing easily-controllable air intakes on window sills; wall heights of classrooms are 7 ft 6 in. in kindergarten, 8 ft in elementary wing, and 8 ft 6 in. in high school and center sections. Bottom right: high school lanai outside student council room is widened and partitioned to provide informal conversation area. All masonry work on both exterior and interior is natural boulder concrete, with exposed boulders forming a pattern; wood columns and paneling are ohia, stained a dark brown. Paint colors, chosen with help of parent-teacher committee, include coral, blue-greens pale yellow, off-white

A CASE STUDY IN PRECISELY CONTROLLED

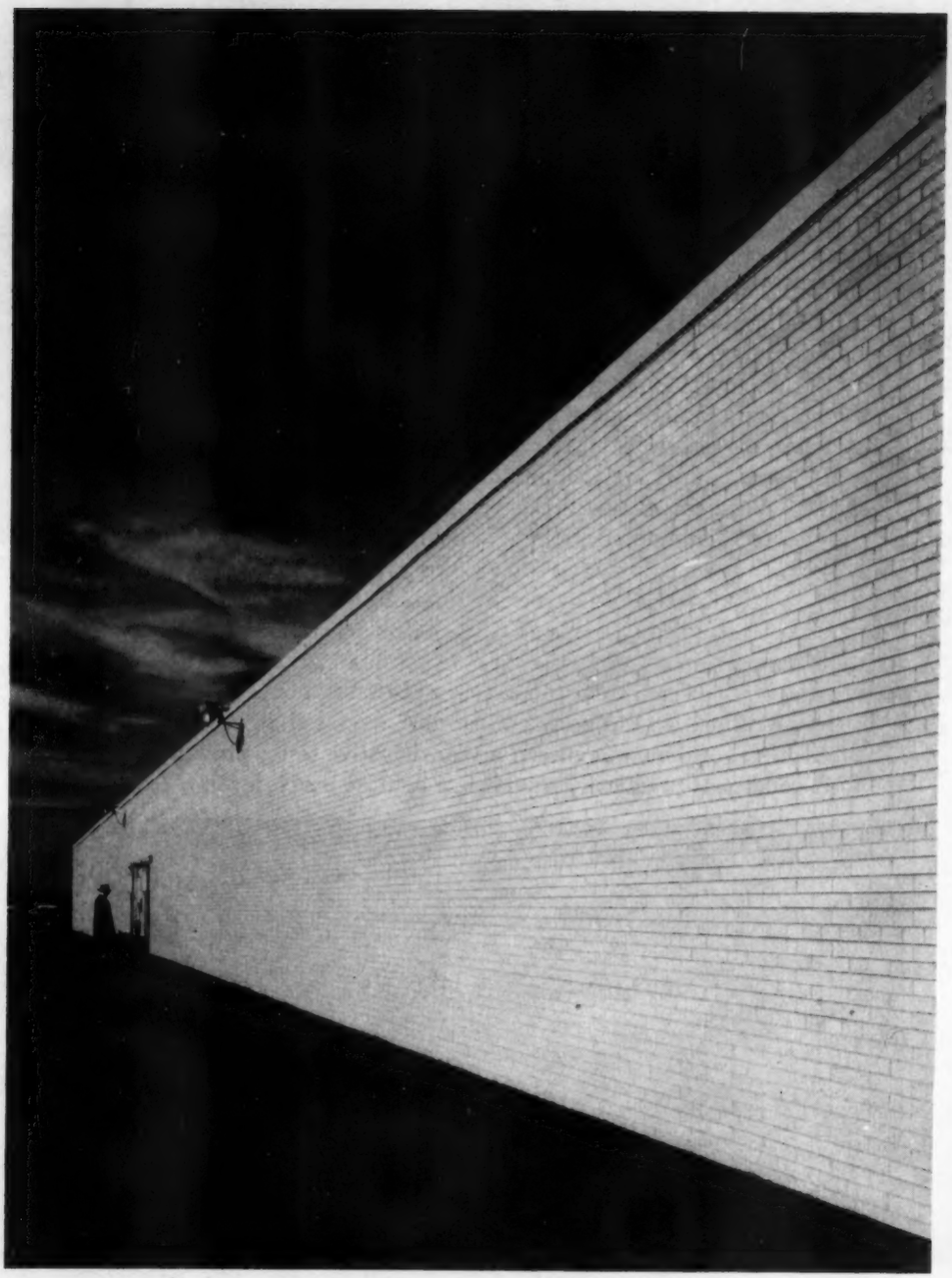
Hedrich-Blessing

C. P. Clare & Co. Plant, Chicago

Rapp and Rapp, Architects

Norman E. Bueter, Mechanical Engineer

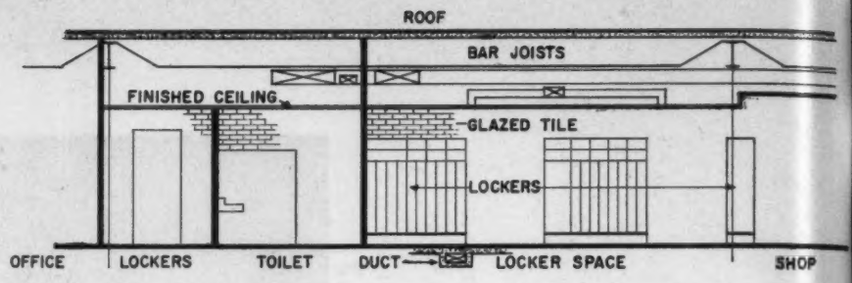
William H. Koenig, Builder



ENVIRONMENT

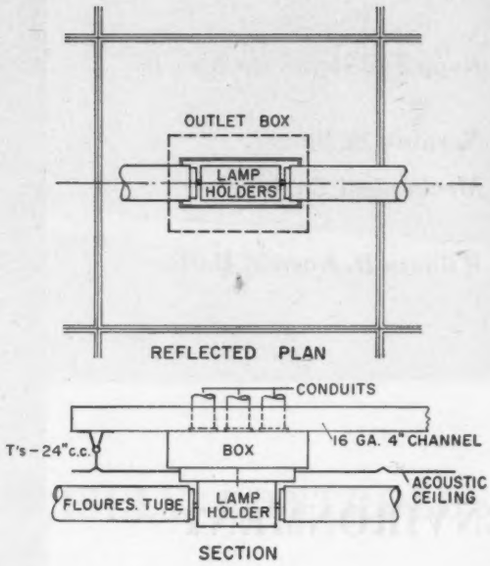
SINCE DUST AND DIRT are the principal causes of failure in sensitive electrical relays, every effort was made to eliminate those hazards in this plant for such devices. An environment proper for delicate manufacturing processes was here created by carefully designed and controlled air conditioning and lighting systems in a building completely devoid of windows except at the main entrance lobby. Metal pan acoustical ceilings, washable ceramic tile walls and light colored asphalt tile floors make for easy maintenance of cleanliness within the manufacturing area. In addition to a cheerful lunch room and lounge, there are open air recreation areas for the employees.

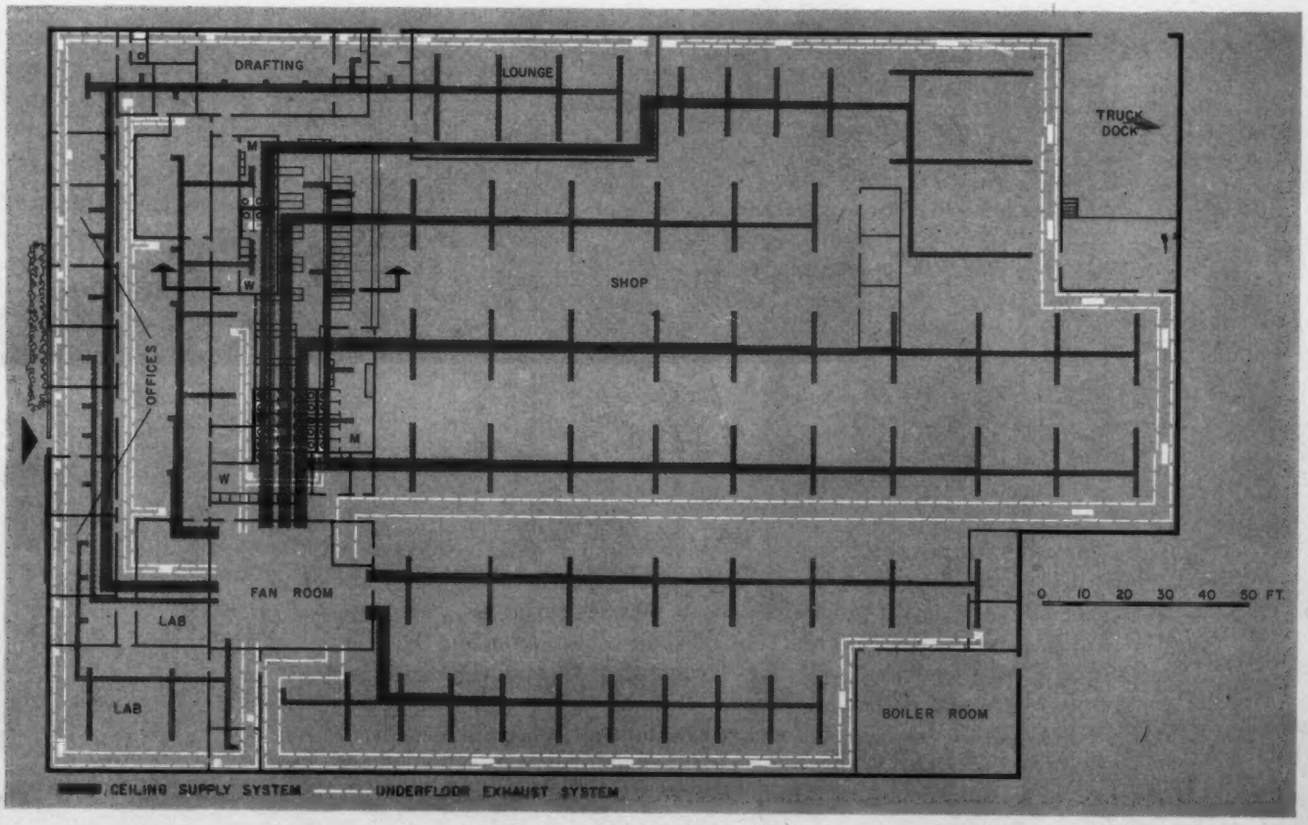
The section at right shows roof and ceiling construction, overhead supply ducts, underfloor returns. Detail of lighting, below, shows method of surface-mounting 4-ft fluorescent tubes and integrating their length with the 12-in. modular pattern of the ceiling

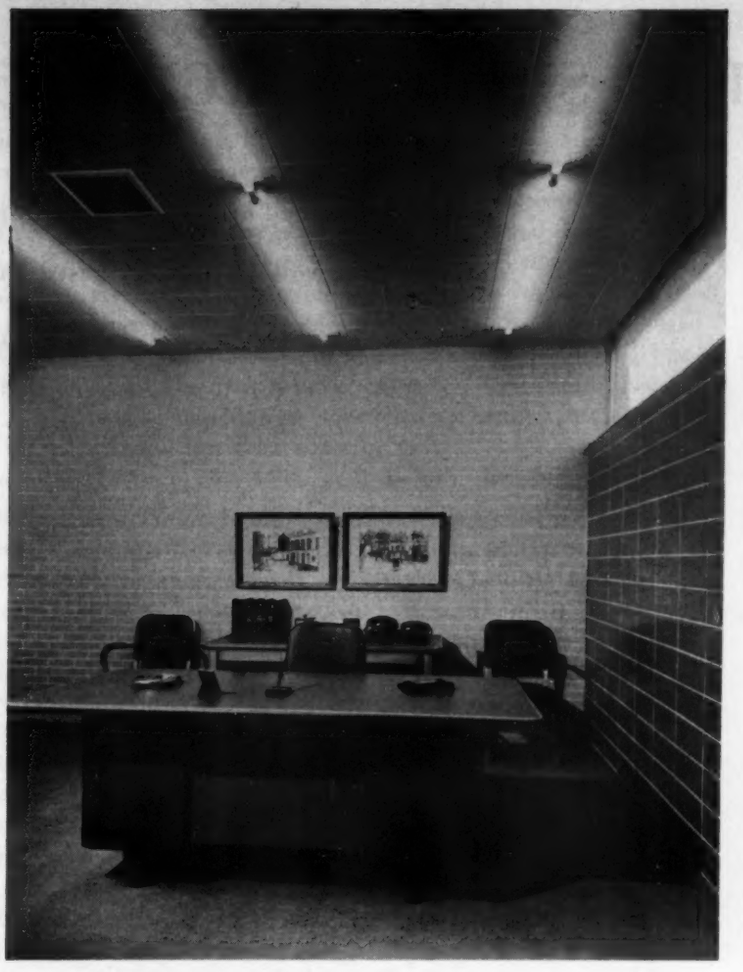


The plan, which is drawn to show the pattern of ceiling supply ducts and underfloor returns, is a relatively simple one. The fan room is located between the office block and the large central manufacturing area. The latter is cut into at the top of the plan by the employes' lounge and at the right by the truck dock and the boiler room. The air supply is cleansed of dust and smoke particles by electronic precipitation before being heated or cooled, humidified or dehumidified, and is then circulated through a system that is unusual in furnishing five to six times the conventional number of directional outlet grilles in order to provide an unusually heavy supply. Air contamination such as odor, heat, dirt, or smoke originating in the manufacturing processes is handled by exhaust grilles in the floor directly under the source. The supply of power and air is from floor ducts, hence nothing is suspended from the ceiling to catch or hold dirt.

The lighting system, rows of surface mounted fluorescent tubes on 4 ft centers, was chosen after exhaustive tests; provides 75 ft candles of practically shadowless light at bench level.







The 9-ft 3-in. ceiling, above, is finished with alternate panels of perforated metal acoustic tile or plain metal tile, with insulation between them and the roof joists to seal out dust from above. Typical office at right; the manufacturing area below

Hedrich-Blessing

HOW SHOULD ARCHITECTURE BE TAUGHT?

This is the second of three reports on problems of architectural education today based on a survey of leading educators and practitioners as summarized by

John Knox Shear, Head, Department of Architecture, College of Fine Arts, Carnegie Institute of Technology

WHEN PROFESSOR SHLOMO SHA'AG visited twenty-three North American architectural schools last summer he showed particular interest in three aspects of the curricula. Before returning to Israel where he is in charge of the architectural school at Haifa he made a report on his tour which was subsequently published in the February issue of ARCHITECTURAL RECORD. That report indicated a reaction to what he had seen ranging from pleased surprise to polite horror and prompted this magazine to aim seven questions at one hundred educators and practitioners throughout the country. The first question dealt with the selection and screening of students for architectural study and replies to it were reviewed in last month's issue. The second, third and fourth questions were designed to collect testimony on the three matters of courses and their administration which had arrested Professor Sha'ag's attention. These were: architectural history, Basic Design, and the "integrated curriculum."

How Much Architectural History and When?

On architectural history the RECORD had asked its question in this way: "*How much knowledge of architectural history do you feel the curriculum should require and at what stage of the student's development do you feel it should be introduced?*" This grew out of what Professor Sha'ag had said of his visit to the Massachusetts Institute of Technology: "I found that they teach the history of architecture only in the fourth and fifth years. Why? First, in order not to influence the new student, who generally tends to copy mechanically. Second, when he is more mature he understands better and, therefore, if he does copy, he does not do so mechanically. Third, after the student has struggled for two to three years with design problems and all that goes with them, he has accumulated a wider knowledge of basic problems of architecture, and therefore he is better prepared to accept with open eyes information about the past."

There is in this interpretation of the scheduling of history at M.I.T. a point of view which urges the taking of exceptions. In the first place it is difficult to imagine that a new student, engaged in studying the design of some necessarily modest, modern building type will find much to "copy" from tomb, temple, leaning tower or tiny Trianon; and whether the motivation be "mechanical," malicious or simply mistaken it is doubtful that even the eagle scouts among them would attempt such difficult artificial resuscitation. Indeed, from the answers of the invited correspondents, it appears that there is a good deal more concern over the likelihood that many of our students would not know how to find the books; and that they are not being led to an understanding of the parallels in cause and effect in the history of architectural form sufficient to enable them to make matured judgements about the appropriateness of continuing some forms while abandoning others. Students today seldom copy anything that is older than the contributors to the architectural magazines. Too often student conceit and faculty inattention ignore history and its lesson that there are some forms and many methods worth continuing and worth copying. Further, the indication that two or three years should be used in accumulating "a wider knowledge of basic problems of architecture" before commencing the study of architectural history seems to ignore that history is one of the important tests of whether a problem *is* basic. Finally, the implied definition that history is "information about the past" is a dangerous half-truth which could be corrected to better express the view of most of today's teachers with the substitution of one word: *present* for past. The great majority of architectural schools are trying to teach history in such a way that their students may better understand and enjoy the *present*.

Perhaps it is unfair to take issue with a very brief report based on a very brief visit. A charitable and probable assumption is that neither Professor Sha'ag nor M.I.T. would subscribe to the implications drawn in the foregoing; implications drawn — and very nearly quartered — not in an attempt to criticize either school or visitor but to afford an opportunity to tilt briefly at some very dilapidated windmills.

That M.I.T. does not believe what otherwise might have been assumed is evident in the reply of Dean Belluschi to the questionnaire: "History gives a student a sense of perspective and above all of continuity. He should be exposed to it rather early and be given the opportunity to continue beyond the minimum of a year if he so desires. The important thing is that history should be considered a tool by which the student is made to understand and accept, rather than belittle,

the present." Lawrence Anderson of the same school noted that "Timing is important, because a study of architecture in the historical context implies a prior grasp of the context." He added that the student "should come to architectural history with a sound knowledge of the flow of world events, situations, and concepts" and asked to "update the information about architectural history at M.I.T. where in future it will occur in the Third Year of a five-year course in order to leave time for subsequent elective studies in this field."

The well known architectural historian and teacher Henry-Russell Hitchcock, who formerly taught at M.I.T., replied most interestingly and his answer to the question is given in its entirety: "Ideally, it seems to me that architectural history should be studied in a liberal arts environment before a student goes on to full-time professional study. This, I suppose, explains the fact that architectural history appears purely as an elective in the Harvard graduate curriculum. There are both advantages and disadvantages in having architectural history appear only at a late stage, as at M.I.T., in the professional curriculum. I believe that in some form it should be introduced for all students in the first and/or second years and that then there should be elective opportunities further along. The character of the historical instruction is, I believe, of more consequence than the point in the curriculum at which it is introduced. My own suspicion is that in too many schools it is a relic of earlier patterns of instruction and taught too largely by rote from textbooks. As I see it, the architecture student has two different though overlapping needs for architectural history. One, of a 'general education' order, such as it is proper that any person should have in his background, that is, some knowledge of the area in which he intends to operate. Second (and *perhaps* not for all students) an opportunity to use certain problems of the past as exercises in architectural possibilities. This demands some intimacy with those areas and is best presented, I believe, as an elective to students who see for themselves its possible value. Above all, comprehension of visual aspects — space, weathering of materials, scale, etc. — requires continuous examination of actual buildings. Generally speaking students will not look at enough buildings, nor look at them carefully enough, unless this is done in a more or less directed way in connection with some sort of course in architectural history."

Replies Differ Widely, Objectives Are Alike

Since it was the work in history at M.I.T. which aroused Professor Sha'ag's interest it has seemed well to allow the men who have been and are responsible for its direction this opportunity for fuller description. The several dozen replies from practitioners and educators across the country show little difference in their attitude about objectives; wide difference regarding amount and timing. The practitioners generally feel that the study is so important that, in the words of Henry Hill: "The history of *architecture* rather than the story of historic buildings should be given to the student from the minute he starts his education and all through his college years, and in such a way that his interest and knowledge is keyed to the understanding of the forces behind and determining the architecture." Fred Markham says: "I see no reason why architectural history, properly presented, should not be offered in all years of the curriculum and sufficient required that each graduate have a reasonable understanding of the entire historic past." A notable exception to these views is that of educator and practitioner Walter Gropius: "I have found that the student, who has first established his bearings by his own work, absorbs history studies better and quicker than when he is faced with them right in the beginning. It intimidates him when he is faced with the master works of former periods before he has become familiar with his own talent in design."

Statistics More Interesting than Conclusive

Of the thirty-six educators who replied to this question twenty-four indicated in terms of credit hours and years how much and when history of architecture is offered. Nine of these schedule history in the first half of the curriculum, nine in the latter half, and six midway. Of these schools three (M.I.T., Oregon, Rensselaer) require one year; twelve require two years; six require two and one-half; and three (Ohio State, Pratt, Utah) require from three to three and one-half years. Three indicate further elective work is available. The statistics may prove interesting to some and may be partially revealing. They can hardly serve as a meaningful conclusion to the symposium of reaction to the question. Six sentences in the answer of Sibyl Moholy-Nagy, of Pratt, express the sense of this meeting by mail: "The place of History of Architecture in the architectural curriculum should not be either in the beginning or toward the end of the undergraduate program, but should accompany all five years up to the first examination." "History of Architecture, apart from its factual value, has a great coordinating power. It fixes the place of the future architect in the over-all scheme of human society. By seeing himself as part of man's oldest continuous effort toward order — the designing of structure

THE QUESTIONNAIRE

Article Two

2. How much knowledge of architectural history do you feel the curriculum should require and at what stage of the student's development do you feel it should be introduced?
3. "Basic Design" is one of the most important developments in the current architectural curriculum, according to Professor Sha'ag, who remarks that—at the University of Southern California, for example—it virtually combines "the elements of visual design, contemporary ideas about building materials, Fuller's 'atomic' constructions, the functional experience of Bauhaus architecture and Wright's romance." What are your views on the strengths and weaknesses of any of the various approaches to "Basic Design"?
4. What advantages and disadvantages do you see in the kind of "integrated" curriculum Professor Sha'ag describes at the University of Florida, where "they teach all architectural sciences simultaneously and combine them in the same exercise"?

— he can gain both humility and pride." "An architectural student with a continuous training in architectural history cannot help but acquire a vast vocabulary and a systematic method of observation, which will be the basis on which to build his future practice. It seems to me that architectural training without architectural history would be like playing the strings of a fiddle without the resonance of the body on which the strings are fixed."

What of "Basic Design"?

On the subject of "Basic Design" the RECORD asked this question: " '*Basic Design' is one of the most important developments in the current architectural curriculum, according to Professor Sha'ag, who remarks that — at the University of Southern California, for example — it virtually combines 'the elements of visual design, contemporary ideas about building materials, Fuller's "atomic" constructions, the functional experience of Bauhaus architecture and Wright's romance.' What are your views on the strengths and weaknesses of any of the various approaches to 'Basic Design'?*"

On the basis of this capsule description of Basic Design it would seem difficult to define it in any way other than as an introduction to everything. But Professor Sha'ag in addition to Southern California visited and reported enthusiastically on Basic Design at Pennsylvania, Oregon, North Carolina State, M.I.T., and Illinois Institute of Design. Penn and I.I.D. did not reply to the questionnaire but the others did and in their answers, and those of still others, it may be possible to find both a definition and an evaluation of Basic Design.

Arthur Gallion of Southern California: "The strength is in the insistence upon the development of creative talent through research, logic, and social awareness in contrast to the imitative approach, which was, until a few years ago, the conventional procedure. Its weakness lies, as in all things, in the extent to which the technique becomes frozen into a formula."

Sidney Little of Oregon says, in part: "Some earlier weaknesses still remain — particularly the tendency of students in a loosely organized offering to feel that Basic Design is a 'delaying action' which tends toward busywork." "Basic Design has given us a relief from the positiveness of the Orders and it has provided a vehicle for development of necessary sub-professional skills while at the same time offering considerable opportunity for creative experimentation. I think it is significant that no series of texts for Basic Design have been presented. This fact should at least partly confirm the concept that Basic Design is not a 'content course' and that its syllabus should aspire to be a point of departure rather than a goal."

Henry Kamphoefner of North Carolina State: "The source of contention here is much the same as in other schools, not so much with the Basic Design studies themselves, but with the way they lead up to and are followed through into the elements of Architectural Design. The transition from Basic Design to Architectural Design is under constant discussion and experimentation here. The big problem may be in the difficulty of teaching principles to the young student in such a way that he can apply principles later to new processes and methods."

Pietro Belluschi says of the course: "Basic Design has become of extreme importance in creating in the young mind an awareness of space which is the very essence of architecture." Of the teacher: "He will be most effective if he is able to point out basic principles rather than specialized cases where personal or transitory values may prevail." And Lawrence Anderson replies: "The developments in the various schools described by the title 'Basic Design' are of immense significance. They provide testing areas where students and teachers have an opportunity to explore the esthetic meaning and consequences of architectural acts. That there are various approaches to 'Basic Design' is a sign of healthy ferment and that wonderful phenomenon — creative people at work on the same area in different ways. The criticism should come later, if these courses degenerate to standardized academic exercises, covering a stated and frozen subject-matter."

Carnegie Tech Lists No Such Course

Professor Sha'ag looked at the Basic Design courses in more schools than those he reported on. At Carnegie he was surprised that there was no course in Basic Design. Their reply to the questionnaire, considerably reduced but capable — only in other hands — of further reduction or even elimination, was in effect that although they have no course called 'Basic Design' they believe their first year course is probably basic and probably design. It uses spatially realistic situations about which the student is likely to have acquired little prejudice; in which he can discover principles of continuing usefulness; and during which he must develop techniques of study and communication that he will constantly employ. The exercises involve garden, park and forest and proceed from steppingstone paths to walls and arbors to the design of a small garden. Each poses problems of spatial, structural and visual ordering and while each commences with the group handling of full size materials it concludes with simple projected drawings in line and color made from study models and cut-outs.

Other replies were less prejudiced, more pointed and, in many cases, practically pithy. Only the pithier portions are quoted here in an effort to indicate the range and intensity of the general reaction to the question. Roger Bailey, Utah: "The primary aim is to develop and discipline imagination." And: "We are still experimenting, and are more concerned with the basic process than any other phase of our curriculum. Our notion is that 'Basic Design' is Architecture at an elementary stage, and the undergraduate process, properly integrated, is a continuing expansion of fundamentals dealt with under the heading of 'Basic Design'." George Beal, Kansas: "The so-called Basic Design problems, abstract studies, are used best as an occasional exercise to supplement the major architectural problems that form the

(*Continued on page 292*)

ARCHITECTURAL RECORD'S BUILDING TYPES ®

STUDY NUMBER 214

BUILDINGS FOR THE AGED

This study prepared in collaboration with The Modern Hospital

BUILDINGS FOR THE AGED may be expected to undergo substantial changes in concept and design, if ideas of gerontologists are to prevail. Architects working on buildings of this general category will be called upon to absorb new methods of scientific treatment and care of older people, and plan new types of buildings to suit the new programs. In this respect, buildings for the aged will probably see the same type of metamorphosis that has already happened in elementary schools and others, and is currently happening in, say, mental hospitals.

The health program of the federal government contemplates a number of virtually new types of buildings designed at least in part to keep older people out of institutions, to keep them healthy and active rather than to care for them after they have given up the ghost. Here the gerontologists join in with enthusiasm.

In a word, then, we may expect changes in older types, and a whole series of new types of buildings.

The familiar types of buildings are, of course, the "old folks' home" — of whatever variety — and the nursing home. Neither is to be cast out, but both are to be given suitable roles in an overall program of care, and in at least some respects their new roles will involve changes in function and operation. In general, the changes take the direction of increasing medical and nursing facilities, as the institutional "home," it is suggested, should be increasingly for the older people who are truly beyond the reach of the health program.

Types of buildings stressed in the new program include: diagnostic and treatment facilities, rehabilitation centers, nursing and convalescent homes, and chronic disease hospitals. All of these are more or less familiar types of health facilities, but the definitions will probably change, as the buildings find their new places in the campaign for health as opposed to mere care.

The need is truly tremendous. If good health for all of our old people is the objective, we shall need building facilities of all types. The true need is not measured statistically, even though it is important to realize that the number of people over 65 has quadrupled in the last 50 years (statistical analysis in ARCHITECTURAL RECORD, July, 1954). The deeper need is measured in terms of health. We haven't been treating our older people very well. But the sciences of geriatrics and gerontology are showing what can be done. And there is now a concerted effort to attack the problem on a broad front.

The Building Types Study that follows first reports on the programming of this effort for old people, then illustrates a few of the better "homes for the aged," those that in some measure point the way. In later issues the RECORD will report on researches now under way on the more strictly medical types listed above.

NEW PROGRAMS, NEW BUILDINGS FOR THE AGED

BUILDINGS FOR THE AGED, once considered as retreats for ill or impoverished oldsters, are now being viewed as having a different function. Perhaps it would be more accurate to say that they are to have a new place in a coordinated system of facilities designed for a more scientific attack on problems of the aging — a program that considers the idea of retreat only as a last resort.

THEOREM 1: We should plan facilities for health and activity, as well as retirement.

By Leonard A. Scheele, M.D.

Surgeon General, Public Health Service
Dept. of Health, Education and Welfare

There has been a continuous shift in the nature of our national and community health problems. Therefore, we must plan specifically and creatively for the kinds of community facilities we need now and shall need in the years ahead as strongholds from which we can most effectively attack the major causes of illness and invalidism in our aging population. We are all aware that these major causes are chronic disease, mental illness, congenital defects, and injuries.

In general, we have emphasized beds for patients, rather than adequate provisions for the walking patient. I hope that in future planning, our communities will emphasize those types of facilities whose primary purpose will be to keep all of the patients on their feet some of the time, and some of the patients on their feet all of the time. A diagnostic and therapeutic center, a rehabilitation center, physically and organizationally related to one or more of our fine general hospitals would afford a splendid opportunity to apply the most recent advances in preventive and restorative medicine to the problems of chronic disease and aging.

Obviously, no single, all-purpose institution can meet all these needs. We need a network of general hospitals, special hospitals, clinics for ambulatory patients, nursing and convalescent homes, rehabilitation centers, and home care programs — all working together to outflank the major health problems of today and tomorrow. The community must now reassess its plans for the provision of facilities and for the organization of services so that present and oncoming medical advances may have their maximum life-saving, health-restoring impact on all the people.

Hospitals and medically related institutions must be planned, designed, constructed, equipped, staffed, and located so as to carry out their broadening missions both today and tomorrow — in a period of rapid scientific change.

They must be prepared to deal with the individually varied and chronologically changing physical and mental problems of the aged. And these problems must be viewed in the light of medicine's increasing ability to extend the life span, and of society's aim to keep the later years of life productive.

THEOREM 2: Ambulant old people belong in their own homes.

By Edna Nicholson, *Director,*

Central Service for the Chronically Ill
The Institute of Medicine of Chicago

In general, we believe that every individual, regardless of his age, should have a home of his own and should live a normal, useful life in the community so long as he is physically and mentally able to do so. This is just as true at the age of seventy or eighty as in the earlier years. We believe not only that this is desirable but also that it is entirely possible at the present time and is the way in which the individuals, themselves, greatly prefer to live. The assumption that the number of years a person has lived causes him to require care in an institution is even less justified than the assumption he should be forced to retire from his job solely because he has reached some stated age. Old or young, the individual needs shelter in an institution only when he no longer can hold his own in normal community living and care for himself without assistance. He may need only a little assistance but if he does not need any there is no reason for him to come to an institution.

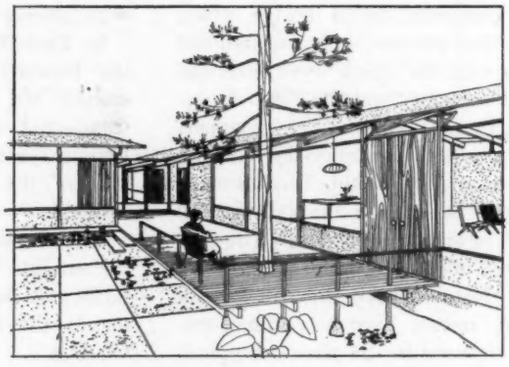
THEOREM 3: Extension services would make home care feasible.

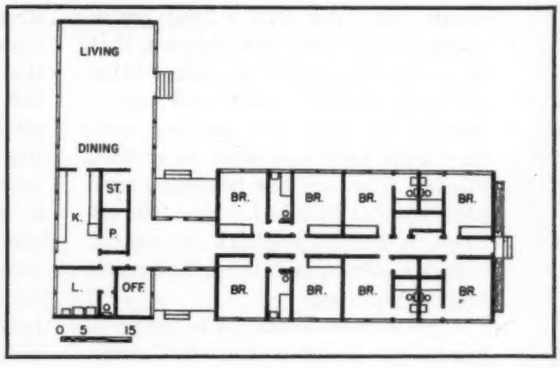
By Dean W. Roberts

Director,
Commission on Chronic Illness

We probably shall not suceed in turning back the clock on the basic sociological changes that have made care in the home more difficult to work out. There are, however, some very definite things of a practical nature which will encourage families to care for oldsters and invalids at home. One of the most important of these is to provide supportive services for these families. What are the services that a young and busy housewife would welcome most if she had, for example, a semi-invalid grandfather in the home? I will mention a few which my wife and I listed when we discussed this. First, we would want to know that in an emergency we could get practical help. For example, if one of our children or one of us became ill we would probably be unable to cope with an invalid in the home, for a temporary period. To meet such a situation we would need either to make temporary arrangements for grandfather in a hospital or home for the aged or we would need housekeeper or practical nursing service in our home. Then we would like, if possible, for grandfather to have some interesting social and recreational contacts outside of the immediate family, at least when his lumbago was not bothering him too much. There happen to be two homes for the aged within a mile of our house and one of these has a very active recreational program that is limited to its own guests. We would like for grandfather to be welcome in their activities, to play horseshoes and tinker in their carpentry shop. Perhaps if he swapped stories with them, he would pick up some new ones. If such activities could be worked out on an organized basis, it would permit my wife to have an afternoon or two each week to visit a friend, but most importantly, to get away occasionally from the 24 hour responsibility. Finally, we would like to be free to take our children to the beach for a week or two in the summer without the complications inherent in taking an invalid along.

Each of the services mentioned seems to be within the range of what might be provided on a practical basis by an extension of services of any well organized Home for the Aged, particularly one motivated by principles of service. Such services are important if we are to succeed in making the infirm oldster welcome and happy in his own home and to reserve institutional care for those with no satisfactory family home.





Right: Home for the Aged
Lafayette, Calif.
Walter H. Costa, Architect

THEOREM 4: Homes for the aged need medical facilities.

By Edna Nicholson

It has been our experience that the number of persons in good health who seek — and should have — care in institutional facilities is so small that it is almost impossible to measure it. We do not believe, therefore, that there is any reasonable place in community services at the present time for institutions maintained exclusively for people in good health. This does not mean that there are no ambulant people in need of care. There are substantial numbers of people who are still able to be up and about all or most of the time who need and should have care in good institutional facilities. Almost invariably, however, these persons have some degree of heart damage, high blood pressure, arthritis, diabetes or other chronic disease which has progressed to a point where it is causing some degree of disability and must be expected to continue to progress while the individual requires increasing amounts of care until eventually he is bedridden and ultimately must meet death. Since all of the persons seeking and needing institutional care in their older years are in need of such care because of greater or less degree of illness and incapacity, the modern home for the aged must be prepared to offer good medical supervision and good nursing services of a type which will help to protect the degree of health the residents still have as well as to provide increasing care for them as their conditions progress and more service is needed. At the present time, and in the foreseeable future, we believe that no home for the aged can be considered adequate unless it has an active health protection program and good facilities for providing medical attention and nursing care.

THEOREM 4 (Cont'd): Homes for the aged need medical facilities.

By Carl A. Erikson, F.A.I.A.

Schmidt, Garden & Erikson, Architects
Chicago, Ill.

As we glance at the history of many old people's homes, we find that they start to care for well old people and provide them with casual medical attention during the minor illnesses with which they are afflicted. As the guests grow older and the illnesses more serious, a section of the building is set aside for an infirmary where a little nursing care can be given. If acute medical care is necessary, the guest is taken to a general hospital.

One such institution ran through this experience and then found that they had so many infirmary patients that they needed more equipment and personnel. Starting out with a sick bay in an old people's home with doctors and nurses on call, as the sick bay was enlarged, the medical facilities had to be supplemented by a small laboratory, a simple x-ray, physiotherapy, and more attention by doctors and full-time nurses. They did such a good job of taking care of their own chronics, that they were importuned to accept other chronics, terminal cases, and convalescents. To meet this pressing need, they built what amounted to a small hospital. They are now building a complete hospital to care for, first, the old people in their old people's home; second, outside chronics, and, third, for general hospital purposes.

A governmental solution to the problem may be found in St. Louis County, Minnesota.

This county had two or three infirmaries (formerly called poor houses) in which they were attempting to care for the chronic problem as well as the domiciliary aged. Careful study led them to the conclusion that they should turn over the care of the chronically ill to the general hospitals of Duluth and Virginia. Therefore, the county authorities agreed to build two 150-bed infirmaries, one attached to St. Luke's Hospital and the other to St. Mary's Hospital, both in Duluth; and a third one at Virginia. In making this suggestion they were well aware that the costs per diem of each patient in these general hospitals would be considerably greater than the cost per diem in the existing institutions. They expected, however, that this would be offset in a large measure by a more rapid turnover and return of patients back into useful life because of the better medical care they would receive at the general hospitals. They also expected, because the chronic facilities would be contiguous to and operated by the general hospitals, that there would be no stigma of the poor house about them and, consequently, that patients would enter early and willingly, with family cooperation.

One of these St. Louis County units is now in operation at St. Luke's Hospital in Duluth, a 350-bed general hospital. At St. Luke's there wasn't any room in the main hospital block to erect such a building. Consequently, the 150-bed infirmary building was built across the street, connected by a bridge which houses the physio- and occupational therapy sections which serve both the 150-bed infirmary and the 350-bed hospital. A tunnel under the street connects the basement of the infirmary with the basement of the hospital. The infirmary is dependent on the hospital for all medical service of every kind. The residents and internes service the infirmary section just as they do the general hospital; nurses likewise. Administration is centered in the general hospital, as is all food service. The laundry for the combined institutions is in the infirmary section. The infirmary patients who require acute nursing care or the facilities of the hospital are cared for in the hospital. St. Luke's Hospital has the privilege of transferring to the infirmary section any of its patients who, they think, can best be cared for in the infirmary (incidentally, at a very much lower cost per day than if cared for in the general hospital).

A formula has been set up for determining the costs in the infirmary and for such hospital costs as take place within the hospital proper. The infirmary was built and furnished by the County and leased to the hospital for $1.00 per year. It has now been operating for a couple of years, but it is still too early to tell whether the high hopes of the proponents of this plan have been fully realized.

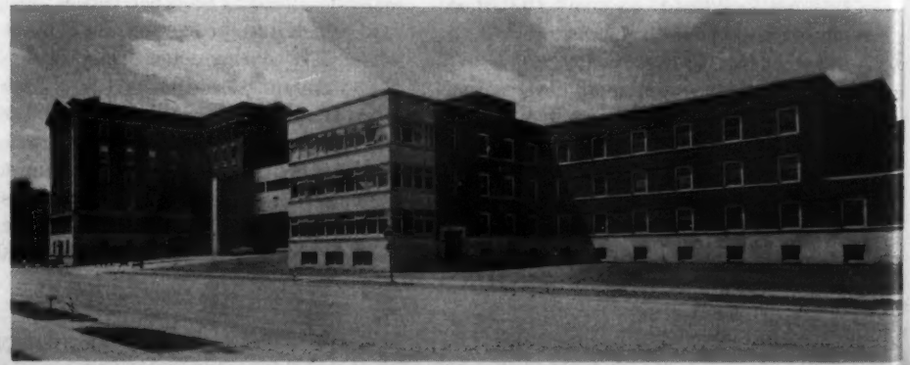
Another method of meeting this problem is that presented by the Immanuel Evangelical and Reformed Church. This group has an interesting development under way. They have long conducted an old people's home at Bensenville, Illinois. As in every other old people's home, they found that there were more and more chronic patients, and they first thought of building a new, old people's home with a very large chronic section attached to it. Further study of this proposal indicated:

a) That ambulant old people would do better and be happier if kept in touch with family, friends, the community and church with which they were familiar.

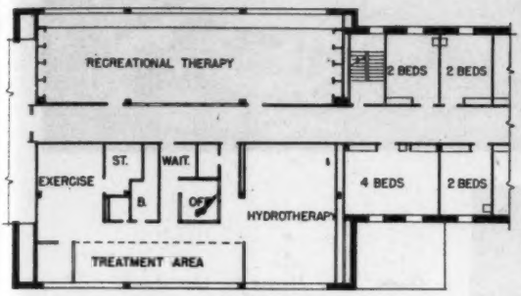
b) That the chronically ill and helpless patients that developed in these satellite old people's homes might be transferred to a new institution at Bensenville where full facilities for the care of the chronically ill would be available.

c) That the acutely ill, whether in the satellite institutions or the chronic facility at Bensenville, should be cared for in the general hospitals of their vicinity.

This program has been started and is already functioning, in part. The first step was the purchase of a house and its rehabilitation for 25 ambulatory old people at Freeport, Illinois. The infirmary section of 40 beds is now under construction at Bensenville, and completion is expected within the next six months. The third institution in the group will be a new 12-bed old people's home at Peotone, Illinois, for which bids are now being requested.

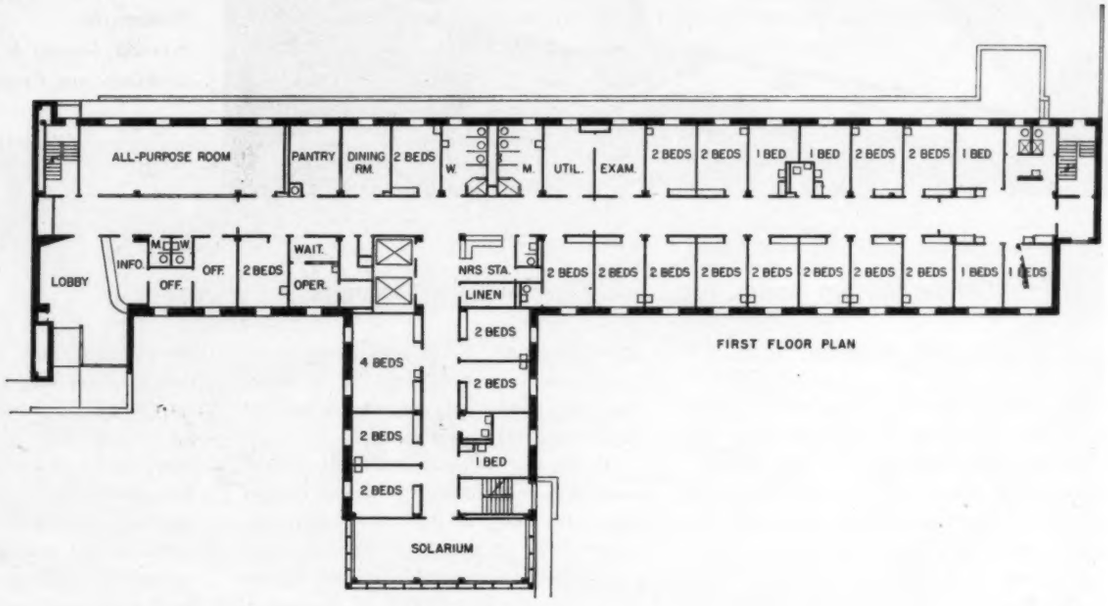


Rendering and floor plans (opposite) of St. Luke's Infirmary, Duluth, Minn.
A. Reinhold Melander, Architect
Schmidt, Garden & Erikson, Consulting Architects

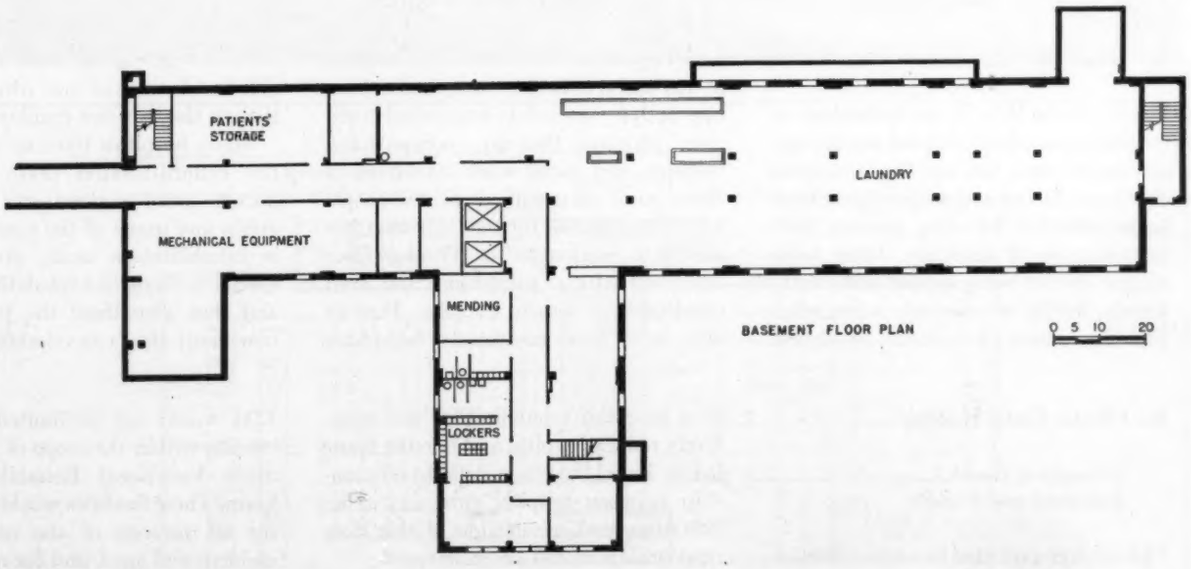


THIRD FLOOR PLAN

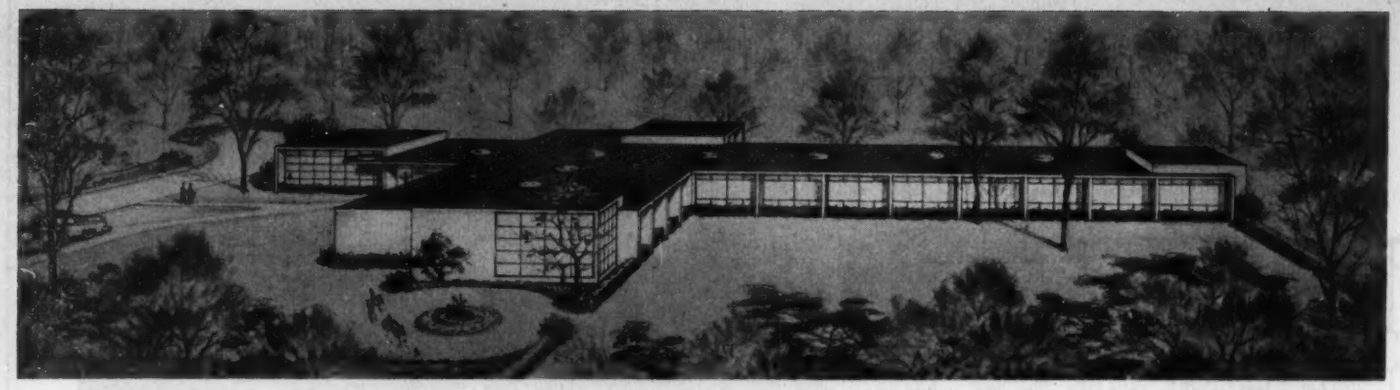
Gallagher's Studio

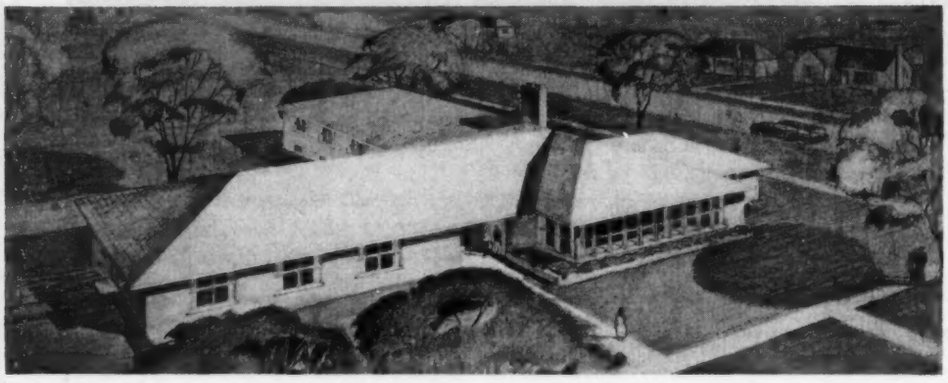


FIRST FLOOR PLAN



BASEMENT FLOOR PLAN





Above: New Home for the Aged, Bensenville, Ill., and (left) Peotone Residence for the Aged, Peotone, Ill., Schmidt, Garden & Erikson, Architects and Engineers

THEOREM 5: Nursing homes, too, should be "medically-related."

By Leonard A. Scheele, M.D.

At the present time, we do not have precise estimates of the full need for nursing home facilities. Nursing and convalescent homes are essential elements in the nation's health and medical facilities plant. Only within recent years, however, have all of the states brought these institutions under a program of state licensure. Even now there is no requirement in the majority of states that the patients in nursing homes be under medical supervision.

As the true value of medically-related nursing homes, in improving our care of the chronically ill and the infirm, becomes fully apparent to our states and communities, I am sure that we will see progressive improvement of services in these institutions, and a substantial increase in the supply of such facilities. As the economic burden of illness in our aging population increases, it becomes more and more important that we take full advantage of the economies possible in the construction and operation of nursing and convalescent homes, as a means of utilizing more effectively the beds in general and chronic hospitals.

THEOREM 6: Rehabilitation facilities are important to the program.

By Dean W. Roberts

During World War II, the technology of rehabilitation of the disabled was greatly advanced. Since the war the techniques developed for injured soldiers have been found effective for older persons with certain types of disability. These techniques are not being applied sufficiently widely, partly because only a few rehabilitation centers have been developed. Rehabilitation of the severely disabled at any age is difficult. It requires a team approach by specialists in physical medicine, physical therapy, occupational therapy, and social work. Members of these teams are usually dedicated people whose enthusiasm for rehabilitation has an almost religious fervor. Through their combined efforts, paraplegics and even quadriplegics return to jobs. Persons who have been completely bedridden for years get up on their feet and are able to take care of their own needs even though they are not employable.

Many hospitals have several parts of the rehabilitation team — doctors, nurses, social workers, and physiotherapists and much of the equipment used in rehabilitation units, give the staff specific training in a rehabilitation center and then give them the job of seeing how many they can rehabilitate.

By Oveta Culp Hobby

Secretary of Health, Education and Welfare

The services provided in a rehabilitation center are in many respects an extension of the treatment and services provided in a hospital; rehabilitation can effectively reduce hospital and nursing home loads. Thus, there is a definite relationship between hospital care and rehabilitation, and recognition of this close relationship should be encouraged.

It should be noted that the rehabilitation facilities contemplated in H.R. 7341 would not be limited to persons coming within the scope of the Federal-State Vocational Rehabilitation program. These facilities would be available for all persons of the community — children and aged, and for other persons who are not necessarily being returned to jobs.

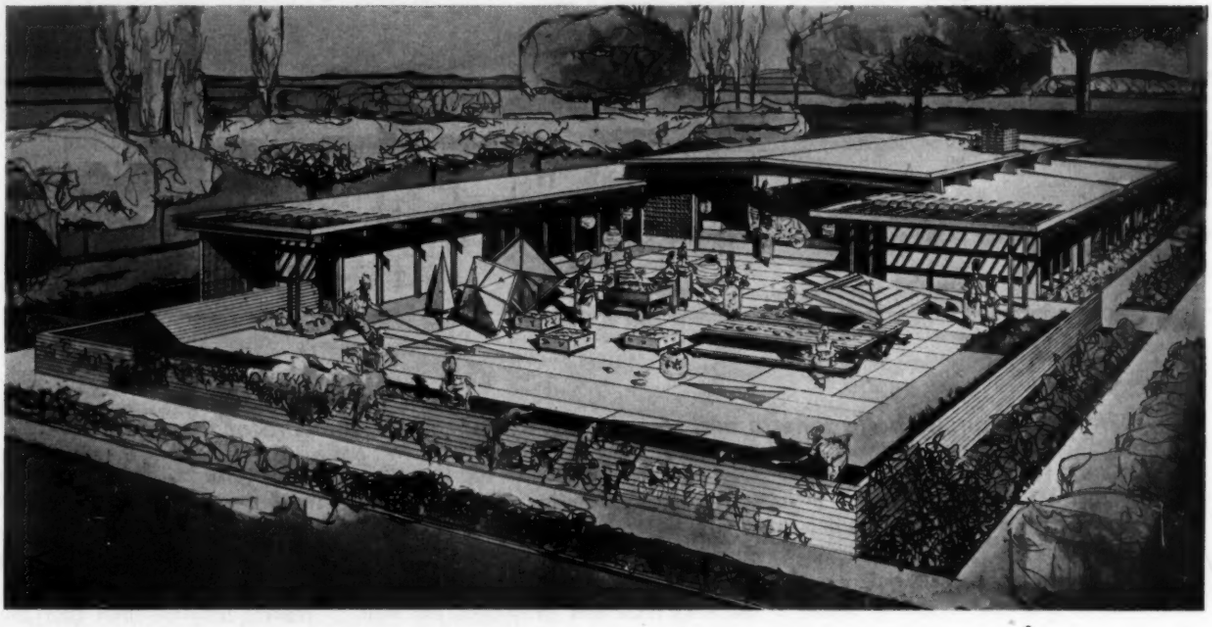
THEOREM 7: Recreation facilities are also necessary.

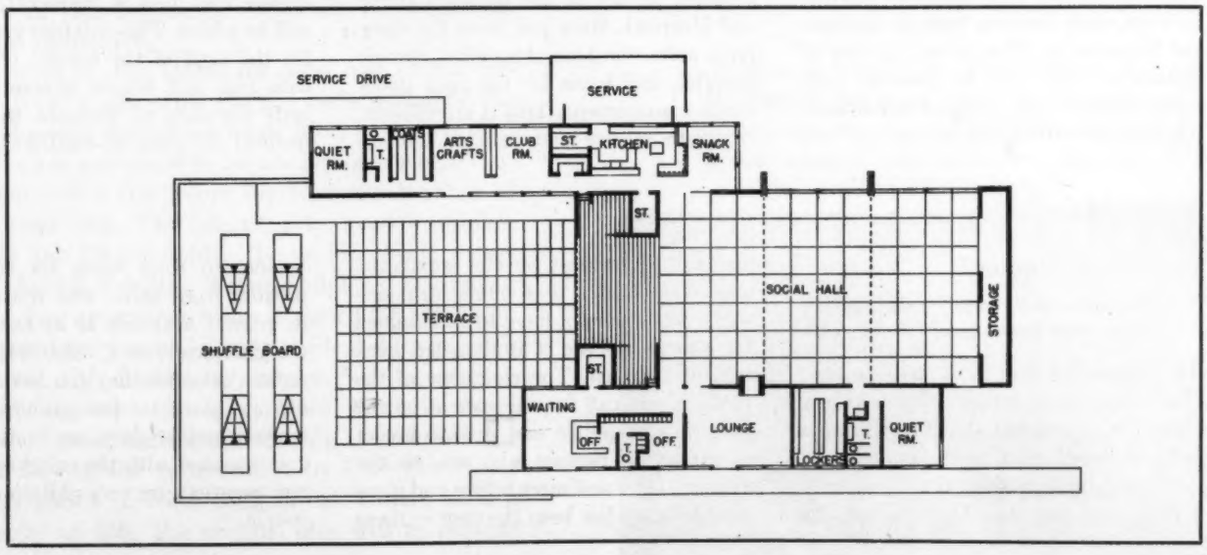
Authorities quoted above have mentioned in their writings the heavy reliance placed on recreational and environmental factors in maintaining the physical and mental health of old people. It seems too obvious to need belaboring — any program of health and activity must comprehend recreational needs. And all of the references on design of buildings for the aged mention the need for rooms and facilities for social activity, recreation and occupational therapy.

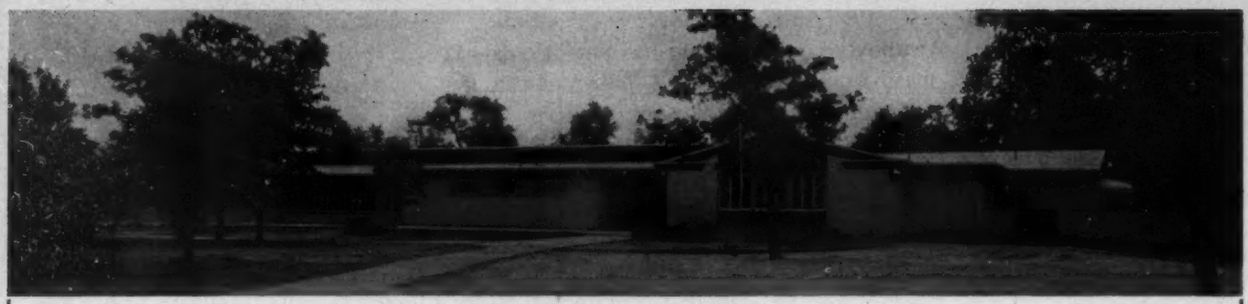
But there is a building facility not frequently mentioned, one not included in the list suggested by the federal government. That is a recreation center, where old people who live at home can fill their daytime hours profitably or at least pleasantly. Certainly such a center would contribute importantly to any program to keep oldsters in their own homes. Its contribution would be felt not only by the old ones, but also by their families.

Recreation centers are familiar community projects all over the land, in small towns as well as congested metropolitan centers. But usually they are so specifically designed to harness the energies of youth that old people could not use them, might in fact stay as far away from them as possible. How about some consideration for the old ones, who also have problems of adjustment, and who, furthermore, have energies needing some outlet?

Below: Pasadena Center for Older Adults; Pasadena, Calif. Smith and Williams, Architects and Site Planners



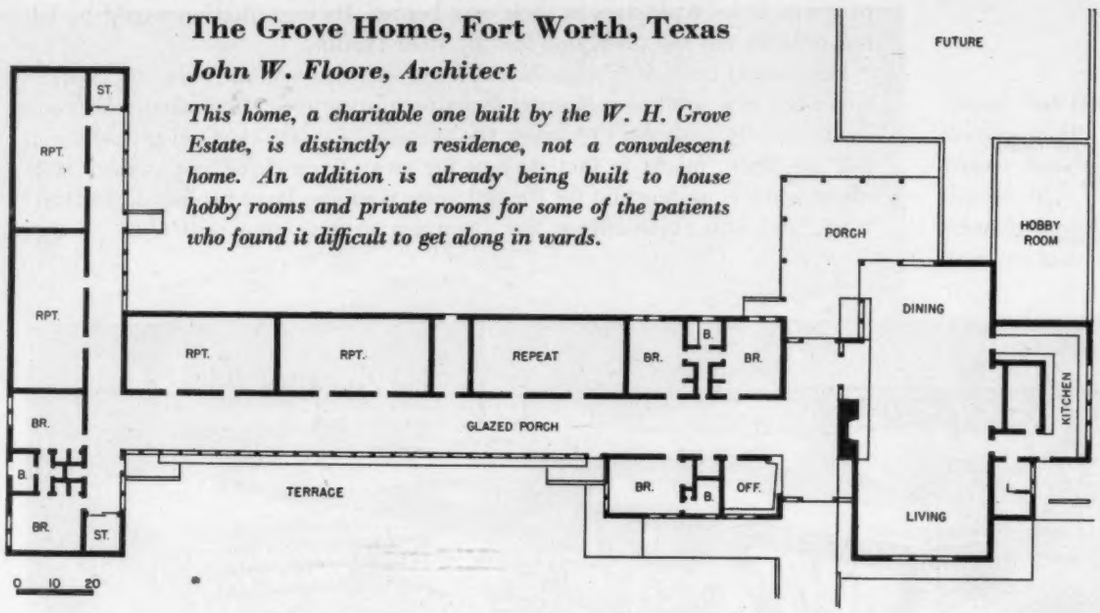




The Grove Home, Fort Worth, Texas

John W. Floore, Architect

This home, a charitable one built by the W. H. Grove Estate, is distinctly a residence, not a convalescent home. An addition is already being built to house hobby rooms and private rooms for some of the patients who found it difficult to get along in wards.



THEOREM 8: Hospitals, both general and chronic, have vital roles in the care of the aged.

By Dean W. Roberts

Those who visit institutions are familiar with an oft-repeated picture: patients in general hospitals who long ago recovered from a partial stroke or some other illness, but who remain for months or even years because there is nowhere for them to go. They block the use of general hospital beds for patients with acute medical and surgical conditions. Then we repeatedly see seriously ill and dying patients in homes for the aged or nursing homes that are totally incapable of meeting their medical and nursing needs.

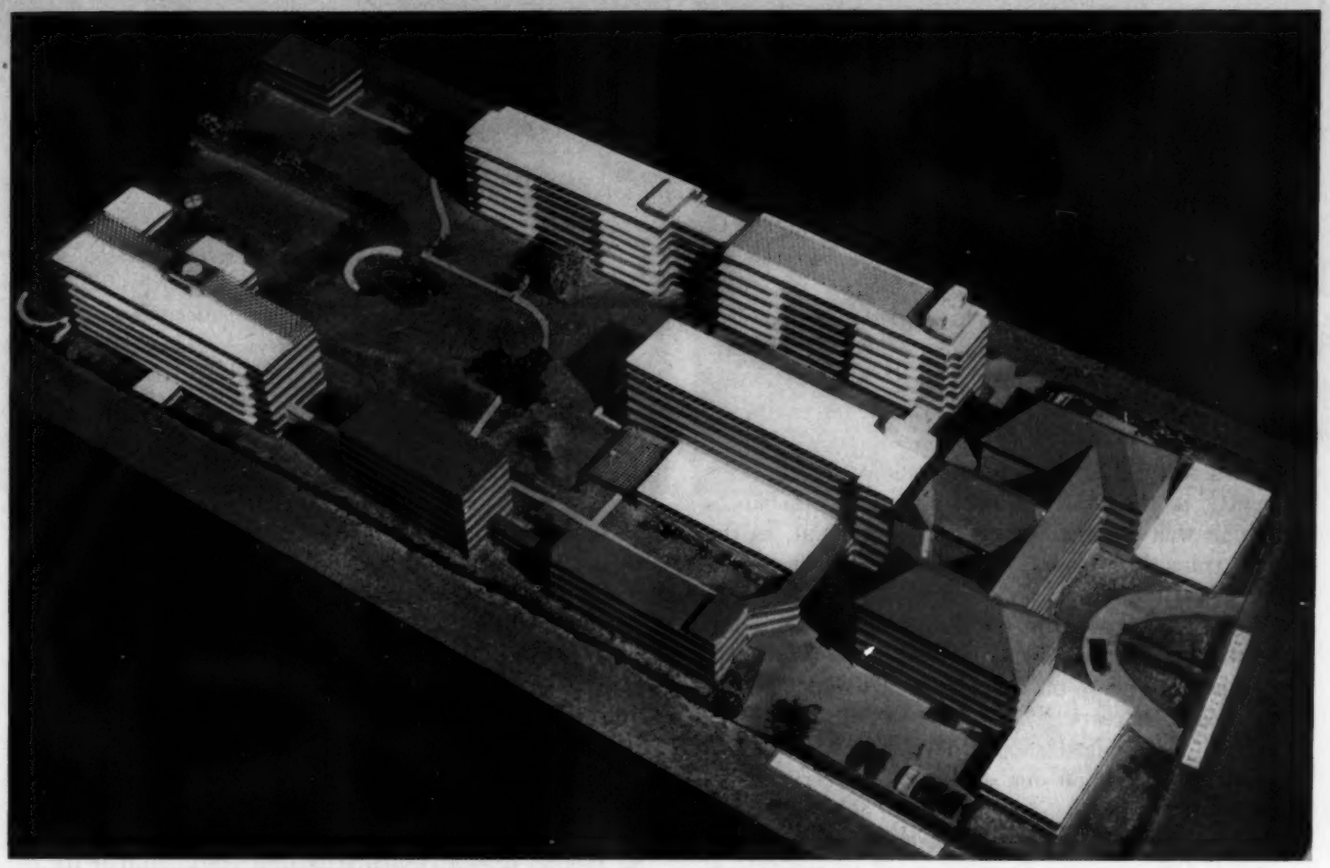
I would like to call your attention to the very excellent prototype for well rounded service at the Bethany Home and Hospital. Here you have the three basic units; the general hospital, chronic hospital, and home for the aged under single management. This is an efficient, complete service and enables the administrator to make maximum use of the entire facility. He can keep the right patient in the right bed. I hope that as rapidly as possible your homes for the aged will be coordinated with your general hospitals and that the chronic disease unit, now so frequently lacking, will be added. This will free your homes for the aged of the burden of sickness care and will release general hospital beds for care of patients with acute medical and surgical conditions.

SUMMARY:

By Ollie A. Randall

Consultant on Services for the Aged
Community Service Society of New York

To summarize briefly, it may be said that there is a definite trend in our society which means that for a time at least there will be a continuing demand for living in homes for the aged, both public and private. The size of the demand, as forecast by our population experts, indicates that public responsibility will probably have to be assumed for a greater share of it than has been true in the past. The character of the problem will call for adjustment on the part of both public and private homes to caring for persons who are, on the average, older and more infirm and more disabled than has been the case — these persons in their needs for care being distinct from those who must have it in general hospitals or in hospitals for the chronically sick. Also while homes remain essential they can have no satisfactory place in the gamut of social services unless they are motivated by and operated with the enlightenment of our twentieth century philosophy about people.



Ben Schnall

Model for future development of Kingsbridge House, Bronx division of the Home for Aged and Infirm Hebrews

EXPERIENCE DICTATES A NEW PROGRAM

The Home for Aged and Infirm Hebrews of New York, with 925 beds already, plans new approaches for the future

By Richman Proskauer

President of the Home

THE OLD SAW, "there is nothing new under the sun" does not apply to the problem of the aging. The large numbers (13,000,000) and increased life expectancy of our older population, together with present employment regulations, make the progress of the last few years in this branch of social service seem outmoded and ineffective.

In our work at The Home for Aged and Infirm Hebrews of New York (with its 925 beds probably the largest voluntary institution of its kind in the world) I have seen ideas presumed to be revolutionary turn out, in the space of a few years, to be futile because of changed conditions. The following are good examples:

In 1949 the Home, under the architectural supervision of Joseph Douglas Weiss, completed the reconstruction of an apartment house designed for admission of 130 ambulatory aged. Every resident has an individual room, with doubles for couples. Such occupancy is seriously questioned today, since there is every reason why these individuals should continue living independently in the community. In 1950 the Home opened its Bronx division Kingsbridge House, with a bed capacity of 400. The original idea was to provide

Joseph Douglas Weiss

Architect for the Program

Addition to Kingsbridge House, first of the new buildings in the above model, is principally residential; the existing building was remodeled to include extensive medical facilities *(plans p. 197)*

quarters for 50 per cent ambulatory and 50 per cent chronic ill. However, with awareness of future requirements, Mr. Weiss arranged many of the ambulatory areas for conversion into nursing home facilities. Today with full recognition of the public need the number of ambulatory is being rapidly reduced, with emphasis on admission for the sick applicant.

Between pensions, social security or old age assistance, no retired worker today can be termed indigent. Why, therefore, should homes for the aged be swamped with applications for admission? The answer is simple. Retirement while in full possession of one's faculties engenders feelings of frustration and loneliness. This frequently is the start of mild mental disturbances which can well become serious and permanent, as the sudden transition from occupation to idleness can readily cause life to seem no longer meaningful and real.

To prevent this rapid physical and mental deterioration, public authorities should adopt preventive measures rather than rely on outmoded custodial methods for the declining years.

Homes for the aged should devote their efforts to nursing home care; no one except under very special circumstances should be admitted until actually unable to carry out his daily activities because of disability. In place of the present-day system of custodial care there should be set up in areas that have large groups of oldsters a home care program designed to supervise the health of retired aging persons. It could be separated into two sections, one for the well and one for the chronically ill.

For the first group, homes for the aged could operate a service similar to that now given by family service agencies. For the second group, a combination hospital-old age home care service would keep even the seriously chronic invalid in the community practically to the end of his days. Except in a minority of instances the old age home would serve as a terminal institution only. Such aids to the elderly will reduce the waiting lists enormously and provide beds for those who need them most. Without such arrangements, because of the high cost of beds and the present great demand, it will be impossible to create enough accommodations for all those requesting them, especially since the need for institutional facilities will continue to outpace existing resources.

The operations outlined would give a new lease on life to its participants and restore their self-confidence and independence to a point where they would once more feel that they were full members of their community.

In New York City there are at present two services answering the description of both of the above proposals. The Home for the Aged, in cooperation with Jewish Family Service, and financed by Federation of Jewish Philanthropies, has managed for five years a small home care project for the ambulatory aged. While it has been virtually a pilot operation the results thereof have been interesting and demonstrative. Of a total of 149 persons treated, only 33 have entered the Home, 13 have passed away and 98 are still being served. Of these, 31 have been on the service for three years or more. The cost of service is insignificant as compared to custodial care.

Kingsbridge House features bright, attractive lounges and recreational facilities, also all manner of hobby and occupational therapy activities. The architect points out that "spaces, colors, furnishings and planting should be as non-institutional and inviting as possible"

Montefiore Hospital has carried on a medical home care program since 1947, as described in *The Modern Hospital* in its issue of May, 1947. Since that time it has been expanded greatly and has proved most successful. A similar service not quite so intensive could be adapted for the aging. Inasmuch as the Federal Government plays so important a part in old age assistance it appears logical that it lead in development of these services, which would offer a perfect corollary to the bill now before the Congress for the construction of diagnostic centers, nursing homes and rehabilitation facilities.*

Up to the present time the majority of homes for the aged have made small pretense of providing care for other than ambulatory applicants. It has always seemed inconceivable that persons seeking admission to a home should in the twilight of their lives be discriminated against because of illness while the less needy, the ambulatory case, be welcomed gladly.

One reason, of course, is that the cost of first-class medical care in an institution is expensive. Fortunately, public authorities are now coming to a realization that by not contributing sufficient funds to voluntary agencies the hospitals become swamped with long term chronic cases which rightfully should be provided for in homes. Inasmuch as hospital beds are needed for acute cases and the cost of nursing-home operation for

**Mr. Proskauer's separate proposals for old age care are now before Congress in H. R. 9861.*

The Home also has been constantly adding to its medical facilities. Many of the "ambulatory areas" were arranged for conversion into nursing home facilities, as the experience here has shown that the demands on the Home are increasingly from old people needing medical attention

Ben Schnall

the aged is much lower per bed than hospital care, there does not seem much question as to the proper course to pursue.

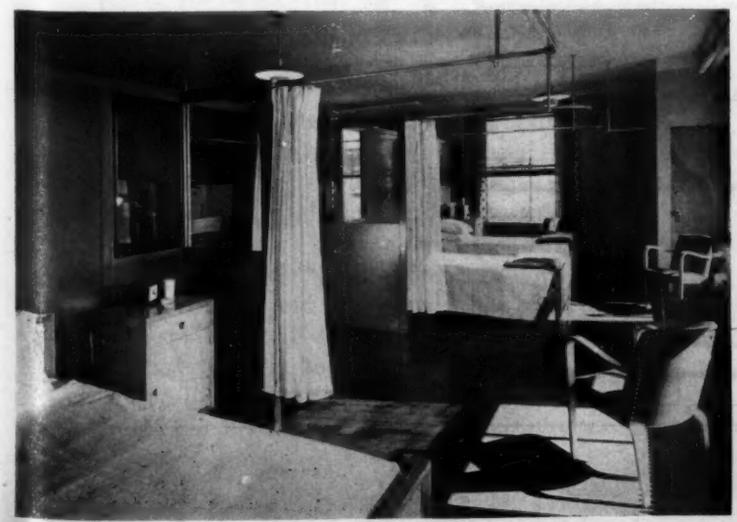
Naturally there will be alterations required in present buildings, such as the installation of nurses stations, medical quarters, laboratories, and the like, but if the burden of the budget is eased largely from public sources, capital funds can be secured through philanthropic channels for the physical changes.

In making these improvements thought should be given to those patients who become mentally disturbed. Senile ailments frequently cause older persons to be mildly disoriented and disturbing to other residents. Separate quarters can be provided for these individuals, rather than the continuance of the present method of transference to state agencies. For those people whose disturbances are neither permanent nor dangerous it is literally a cruel act to place them (displace might be a better word) in mental institutions. Recently an eminent psychiatrist has stated that if there was retention of these cases in our homes for the aged there would in all probability be a 50 per cent recovery record. Since today among psychiatrists there is a great display of interest in mental hygiene among the old perhaps there could be developed a mental service by those doctors seeking to learn some of the answers to old age problems. It is extremely probable that mental hospitals would be glad of the opportunity to cooperate with homes for the aged, rather than make it necessary to develop separate staffs. As mental institutions in practically all states are greatly overcrowded, this would be of tremendous aid to the states.

Another important movement that should be developed by voluntary agencies is the setting up of foster home services. Old folks can maintain closer contact with their families and enjoy the freedom of community living. There are financial advantages because the cost of this service is considerably less than the cost of an institutional bed. In conjunction with home care the system would produce a result close to a normal life of fullness and satisfaction.

Recreational programs for the aged are being provided in most sections of the country. They must be expanded both in numbers and in scope. They offer to the older individual an opportunity to pass his idle hours in company with his fellows. There is no doubt that in the long run these recreational programs will prove to be not only a means of revitalizing the older years, but in a sense will also be a great economy in reducing the number of hospitals, homes and beds required for the infirm and senile aged.

Above all, time is an urgent factor, since the percentage of aged to the total population grows greater each year, and unless we are prepared for the immediate future, it is highly probable that there will be considerable suffering among the old age group.



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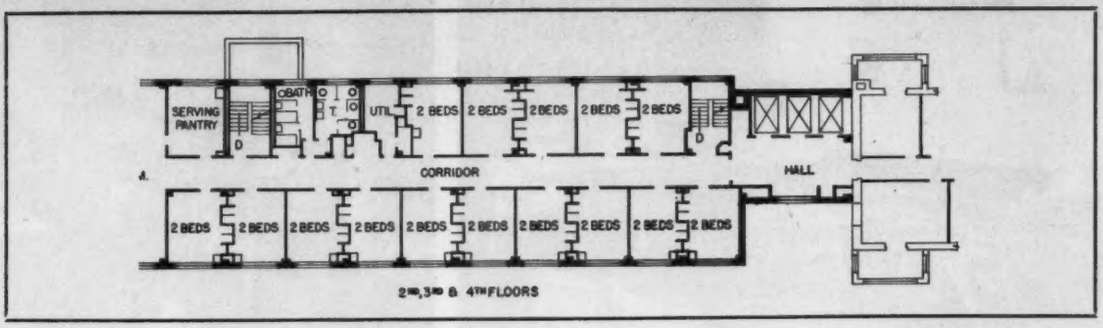
SERVING PANTRY
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T.
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2 BEDS
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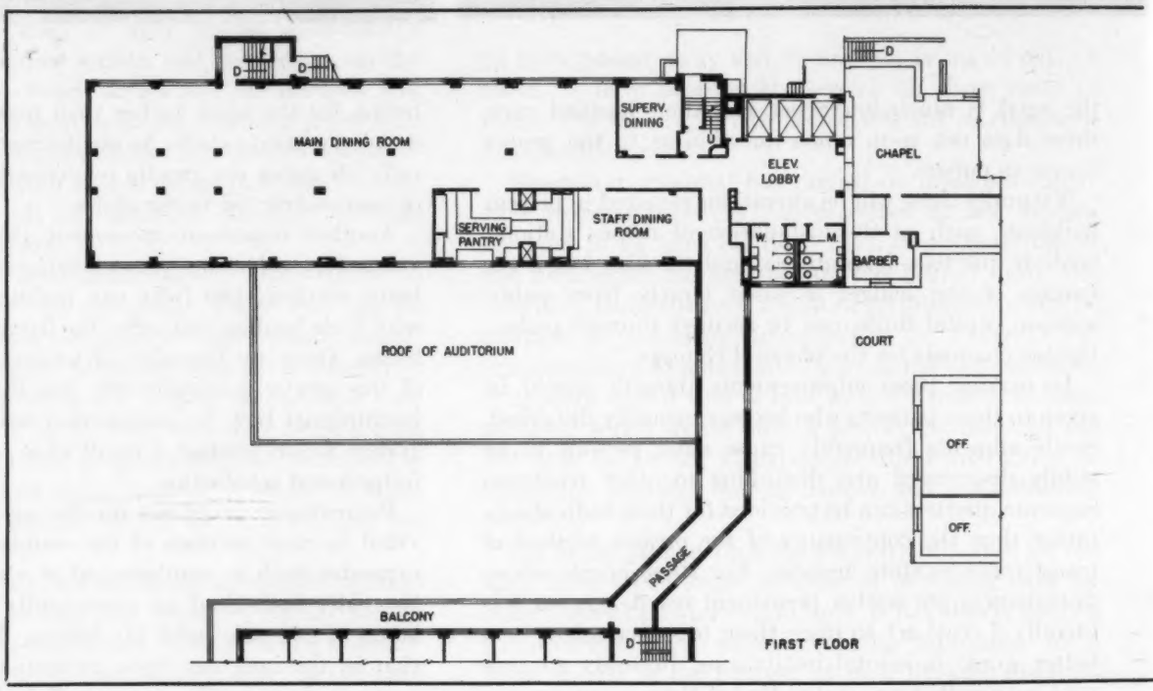
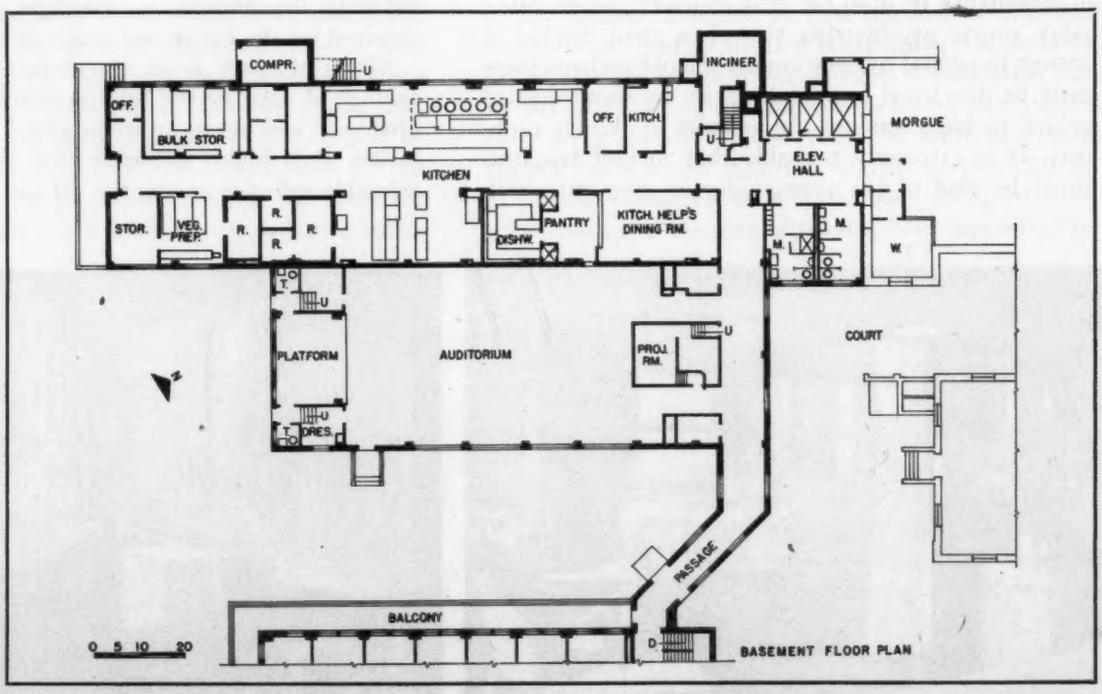
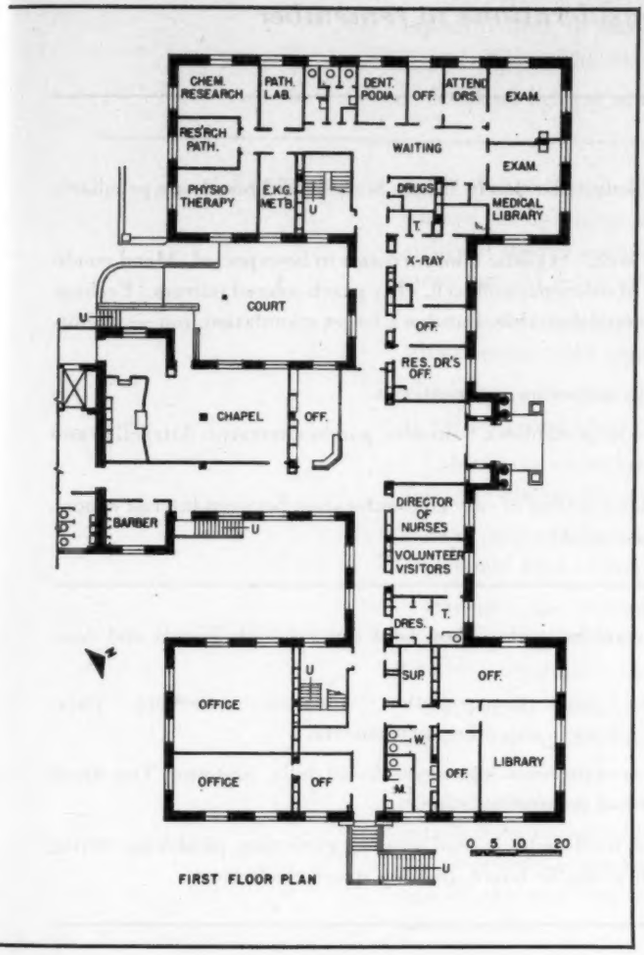
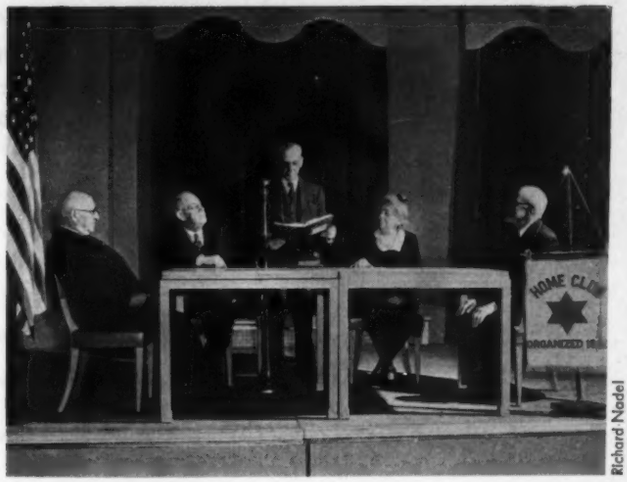
HALL
2ND, 3RD & 4TH FLOORS


MAIN DINING ROOM
SUPERV. DINING
ELEV. LOBBY
CHAPEL
SERVING PANTRY
STAFF DINING ROOM
BARBER
ROOF OF AUDITORIUM
COURT
OFF.
OFF.
PASSAGE
BALCONY
FIRST FLOOR


COMPR.
INCINER.
OFF.
BULK STOR.
KITCHEN
OFF.
KITCH.
MORGUE
ELEV. HALL
STOR.
VEG. PREP.
PANTRY
DISHW.
KITCH. HELP'S DINING RM.
PLATFORM
AUDITORIUM
PROJ. RM.
COURT
DRES.
PASSAGE
BALCONY
0 5 10 20
BASEMENT FLOOR PLAN





Richard Nadel

Arnold Eagle

Since 1933 (as the sign in the photograph above indicates) the Home has encouraged many varieties of club and recreation activities — sewing circle (top), club (center above), social games (above), and shop (below)

KINGSBRIDGE UNDERTAKES RESEARCH

The cumulative experience of the Kingsbridge House staff is to be united in a unique research program, to be directed by Joseph Douglas Weiss, architect. Mr. Weiss writes that the trends are: 1) to provide more single rooms for privacy; 2) more single rooms to have private baths; 3) complete infirmary standards for all resident accommodations; 4) balconies for every room; 5) much larger out-patient and social service departments; 6) larger occupational therapy departments; 7) separate building for "private pavilion"; 8) recreation rooms in each building; 9) further development of psychotherapy and corresponding increase in medical department. Eventually the central institution (Kingsbridge) is to take care of some 3000 old people living in other places and 1000 living here in the nursing home and hospital facilities.

PRINCIPLES OF DESIGN IN BUILDINGS FOR THE AGED

Check list of special considerations to remember

Esthetics

Especially important for a group likely to be closely "house bound." Old people are peculiarly sensitive to environmental factors.

Designs generally should "wear well." Stylistic idiosyncrasies to be expected. Mood conditioning important. Functional use of colors pays off well. (Try peach colored mirrors.) Feelings of warmth, security, repose, considered desirable. But don't forget stimulation, too — monotony is the special burden of old age.

Lighting needs study, both as to intensities and contrasts.

Contact with world necessary — large windows, balconies, porches, terraces. Attractive and interesting views.

Open planning may be useful, for a feeling of easy communication between interior spaces, though privacy may be the primary need.

Location

Old people do not like isolated rural locations. They need contact with friends and community activities.

Important: churches — stores — public transportation — theaters — museums — libraries — hospital and/or doctors — parks — any other amusements.

Avoid industrial smog, noisy or dangerous highways. Avoid hilly contours. Too much bustle and confusion might be as bad as rural isolation.

Desirable characteristics for site: level contour; good areas for gardening, picnicking, sitting terraces, outdoor recreations such as shuffle board, parking space, shade trees.

Safety

Aside from pronounced infirmity or chronic illness, virtually all older people experience a slow decline in physical functions, visual acuity, hearing, general coordination. They don't respond sharply to normal danger signals (smell of smoke, say), and are not too nimble about scrambling to safety. So safety measures take a number of different directions.

Worst of all hazards, say safety experts, is falling. And physical frailty is the primary cause of falls.

Stairs are, of course, worst falling hazard. Bad enough from the standpoint of energy. Absolute elimination of stairs obviously ideal; if stairs are necessary, use wide steps and comfortable rise. Use ramps where possible, even for the height of a single step. But ramps dangerous in icing conditions.

Use skid-resistant floors wherever possible. Carpets are recommended. Avoid surfaces that require waxing. Shiny floors, even though not slippery, are a psychological hazard. Avoid surfaces slippery when wet.

Exits should be double wherever possible. Double kitchen exits especially. Use wide doors, easily opened. Exits should be well lighted. Avoid doors that can't be unlocked from both sides. (Sliding doors might be used where, as in a bathroom, a person might block a door by falling against it.)

Eliminate door thresholds, or other tripping hazards.

Grab rails useful in bathrooms, perhaps also in passages.

Also in bathrooms: non-skid floors, non-skid bottoms in tubs or shower stalls. Seat in tubs or stalls. Low tubs for minimum steps. Perhaps room for an attendant near tub. Some back rest in tubs. Lock operable from outside.

Additional precautions against fire: equipment controls that can be seen and operated by old eyes and frail hands. Perhaps electric ranges in kitchens. Watch open fireplaces as to safety design. Functional colors for any hazardous conditions.

Miscellaneous hazards: sharp corners, anywhere. Caster that would permit furniture, especially beds, to move too easily. Or, at the other extreme, doors, windows, drawers, and so on, which might stick.

Check all lighting as to hazards of all kinds.

Lighting

Aging eyes, even those without chronic ailments, change with the years: the transparency of the eye suffers, the pupil becomes smaller, and visual acuity diminishes. Also the focusing ability of the eye is impaired and the coloration of the eye changes. Altogether these factors mean that old people require more light, also better seeing conditions generally.

As to quantity of light, authorities call for from two to three times the normal intensity for critical seeing tasks for old people.

Brightness contrasts become more important as intensities are increased, for old people as well as young ones.

Color in the visual field needs increased attention, with respect to brightness contrasts and ability to distinguish object clearly and comfortably.

As to color of light: older eyes tend to turn yellow; blue colors do not come through easily. This would seem to indicate desirability of more blue in the light.

Daylight: the psychological effect of sunlight for older people is frequently mentioned, suggesting large window areas. Also housebound people usually like the idea of visual contact with the outside world.

Sun-lighted windows, however, introduce the problem of glare. (Research in England suggests the windows be tall, as a means of reducing glare. One researcher there suggests study of the Georgian window, for its light-colored outside reveals, and splayed, decorative interior reveals, as perhaps being quite functional in graduating the transition of strong outside light to that of the interior.) Cross lighting would also reduce glare. Windows might also come close to the floor, except where, as in tall buildings, low windows might be hazardous. In any case, light control devices, of whatever kind, would be important in rooms for older people.

Other lighting ideas: special consideration to lighting of corridors, doorways, closets, bathrooms. Good light controls, such as three-way switches, also important for not-so-agile people. Plenty of convenience outlets needed. Don't forget lighting on little items like door locks, thermostat dials.

Heating

Older people generally like higher room temperatures, because of the slow-down of physical functioning, and reduced activity. For the same reasons, they are more sensitive to drafts and to changes in temperature. Of all the ideas of heating technology, perhaps the most obvious one is individual room temperature controls, with easy-to-read dials and easy-to-operate control devices.

Bathroom temperatures especially important. One authority suggests that a nude person likes a room temperature of 86 degrees. Special heating of tub or shower stalls a possibility. Or supplementary heating of bathroom.

Open fireplaces especially recommended for old people. Don't forget the fire hazards.

Communications

Thoughtful planning will take into account the need of old people to feel themselves a part of the household, or other group, and their difficulties in normal communication. Such a detail as placement of a bedroom door might be of extra importance, to enable the older person to see when he can't hear well. All space arrangements need study in this respect. Communication is visual, oral, or maybe just psychological. Or maybe mechanical — telephone jacks in convenient places, or signal systems, or "intercom" phones. These may be important, too, in safety matters.

Photos (Hedrich-Blessing) from Solar Light Manufacturing Co

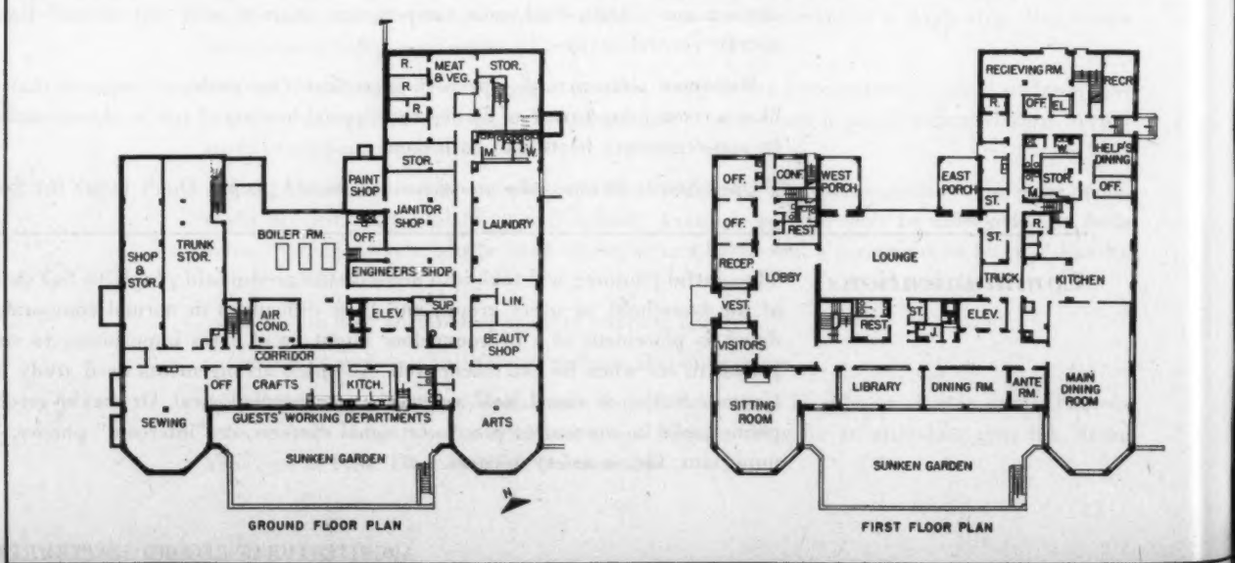
An expensive home for elderly ladies with virtually all possible facilities for modern activity programs and medical care to keep its guests occupied, happy and healthy

Childs & Smith,
Architects and Engineers

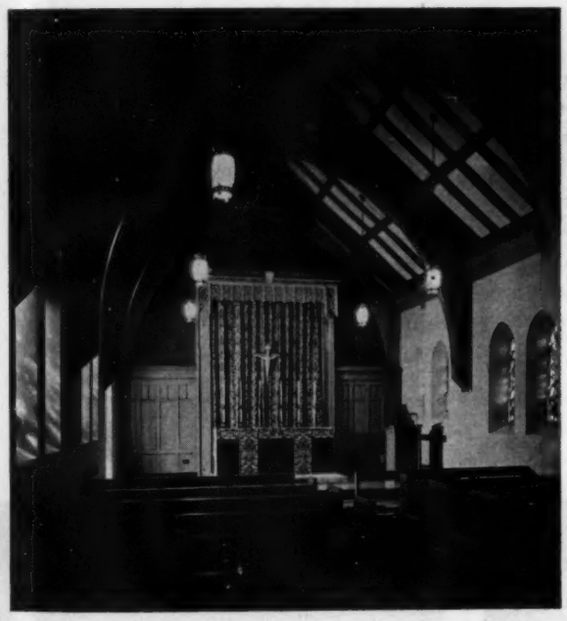
SEEKING THE IDEAL WAY OF GROUP LIVING

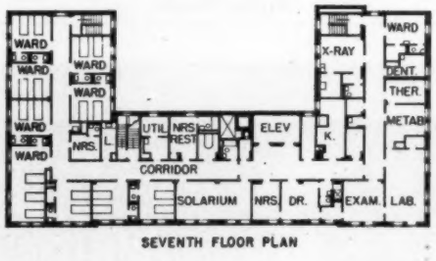
The Mather Home for Aged Ladies, Evanston, Illinois

AN ENDOWED HOME for elderly women, this one sets top standards in "modern, scientific means of making the lives of elderly women as happy, as constructive and as healthy as possible." Indeed its medical suite (seventh floor) comprises a laboratory for the study of geriatrics by the Northwestern University Medical School. It is located, not in a "beautiful, isolated oasis," but in the center of activities in Evanston, close to churches, theaters, stores, etc. There are facilities in the building for all manner of arts, handicrafts, sewing, cooking, music, not forgetting beauty treatments. Each guest has a private room, furnished and decorated in a highly individual scheme, with individual heat control. All very expensive, to be sure, but devoted to the ideal way of group living for the aged.



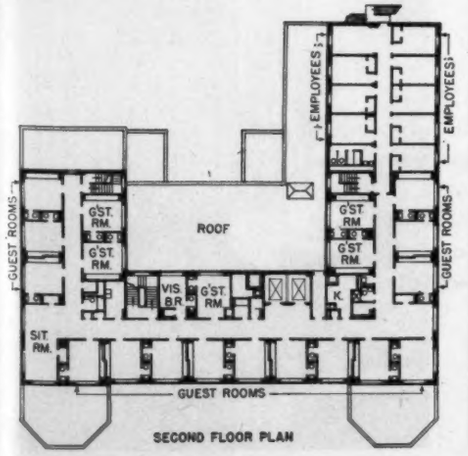
Interiors are well lighted, expensively furnished and decorated, with much gaiety in color schemes



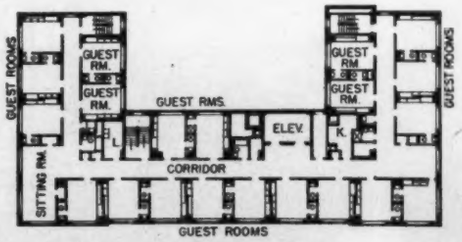


SEVENTH FLOOR PLAN

Floor plans show an extensive array of facilities for keeping the ladies occupied. Seventh floor is a complete little hospital including a laboratory for geriatric study



SECOND FLOOR PLAN



TYPICAL FLOOR PLAN

Site for the home is one of the highest spots overlooking Boston Harbor. A change in grade gives full story height to basement, on side shown in this photograph

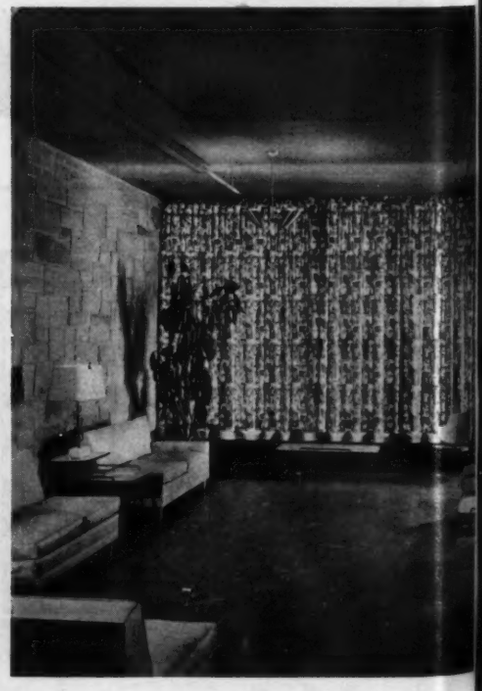
ECONOMICAL HOME FOR AGED ITALIANS

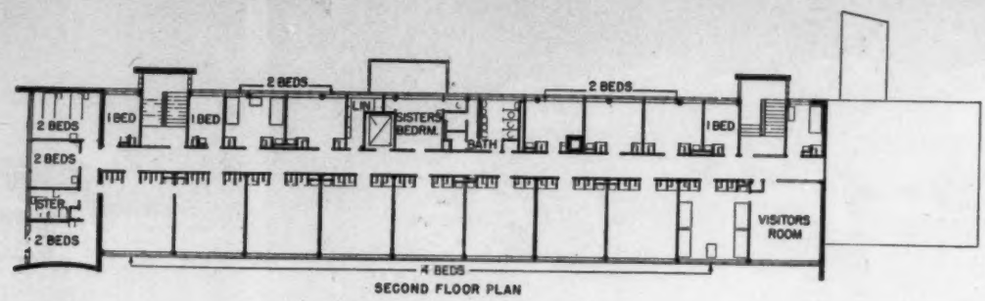
Don Orione Rest Home, East Boston, Mass.

Coletti Brothers
Architects

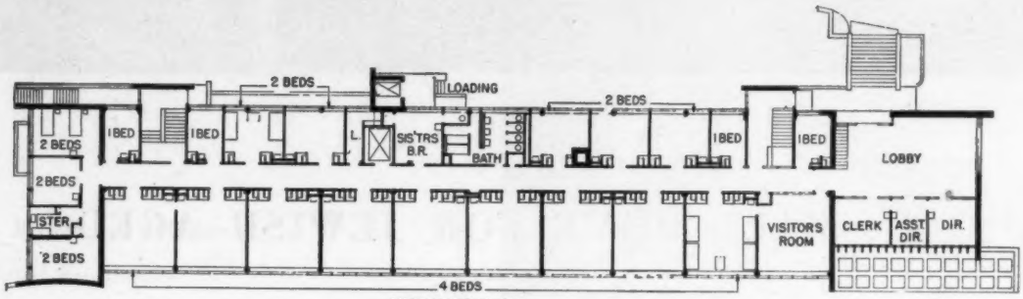
ECONOMY was the principal design objective in this home, but another major premise was that men and women were to be kept separated in all activities. Accordingly the first floor becomes a residence for 50 women, the second for the same number of men. The basement has separate dining and lounge rooms for the two sexes; the elevator is so placed that men and women go separate ways on this floor. The architect explains that the "assembly room," where presumably the men can join the ladies, was really an afterthought, or the row of columns could have been eliminated. However, a wing is now being added, to contain a chapel and an infirmary section, and the assembly room will become a special-occasions dining room.

Joseph W. Molitor

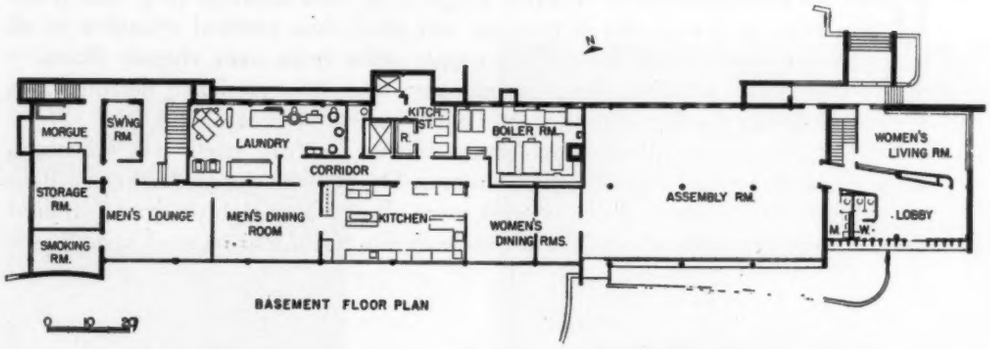




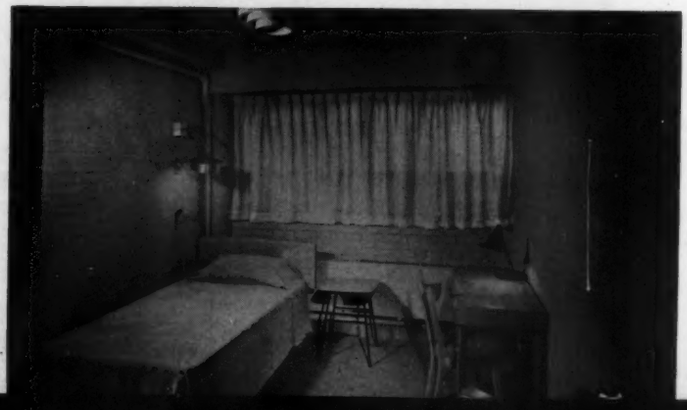
SECOND FLOOR PLAN



FIRST FLOOR PLAN



BASEMENT FLOOR PLAN



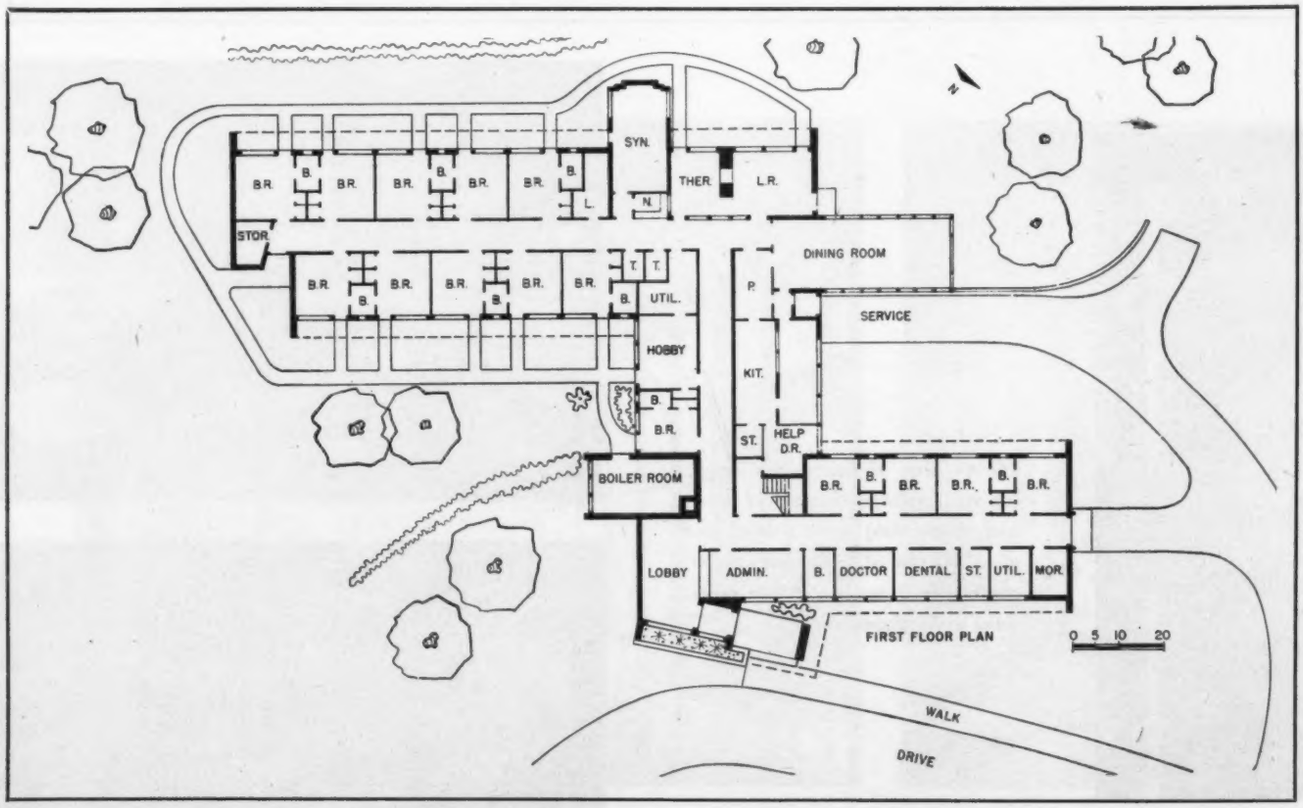
Plaster was virtually eliminated; concrete ceilings (bottom of nine-inch floor slab) were rubbed and given one coat of rubber latex paint; cinder block walls got two coats; some walls glazed brick

TYPICAL SMALL HOME FOR JEWISH AGED

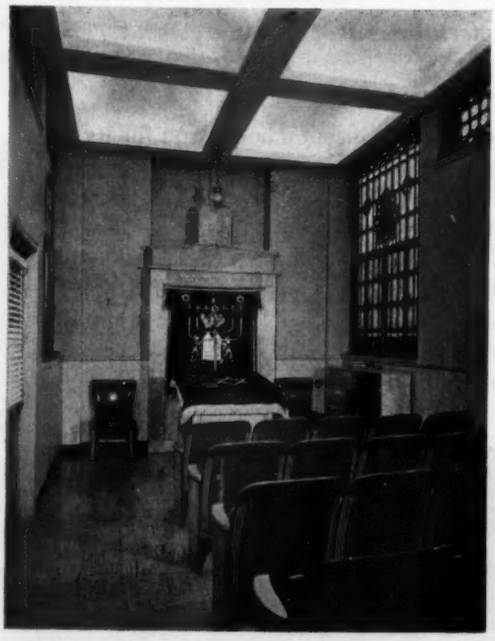
Jewish Home for the Aged, Atlanta, Ga.

DESIGNED principally to serve aging people who need financial help, this home also takes in chronically ill persons, and gives close medical attention to all its guests. It reports that most of its people suffer from some chronic illness — diabetes, asthma, arthritis, heart conditions; thus its experience demonstrates again that homes for the aged must deal with medical problems.

The building is essentially a one-story scheme in three parts: (1) infirmary, (2) dining and recreation section, (3) bedrooms. The plan develops extensive outdoor areas for sitting terraces, pools, concert areas. Building is slab on grade, radiant heat, asphalt tile walls. Exterior walls are concrete block stucco; steel sash.



Moscowitz, Willner & Millkey
Architects and Engineers



Joseph W. Molitor

Though the home is small, it has a synagogue (above) hobby room for sewing and crafts, infirmary with doctor's offices, examining room, dental room, utility. Small second floor contains quarters for a resident doctor, nurse and staff, also roof terrace

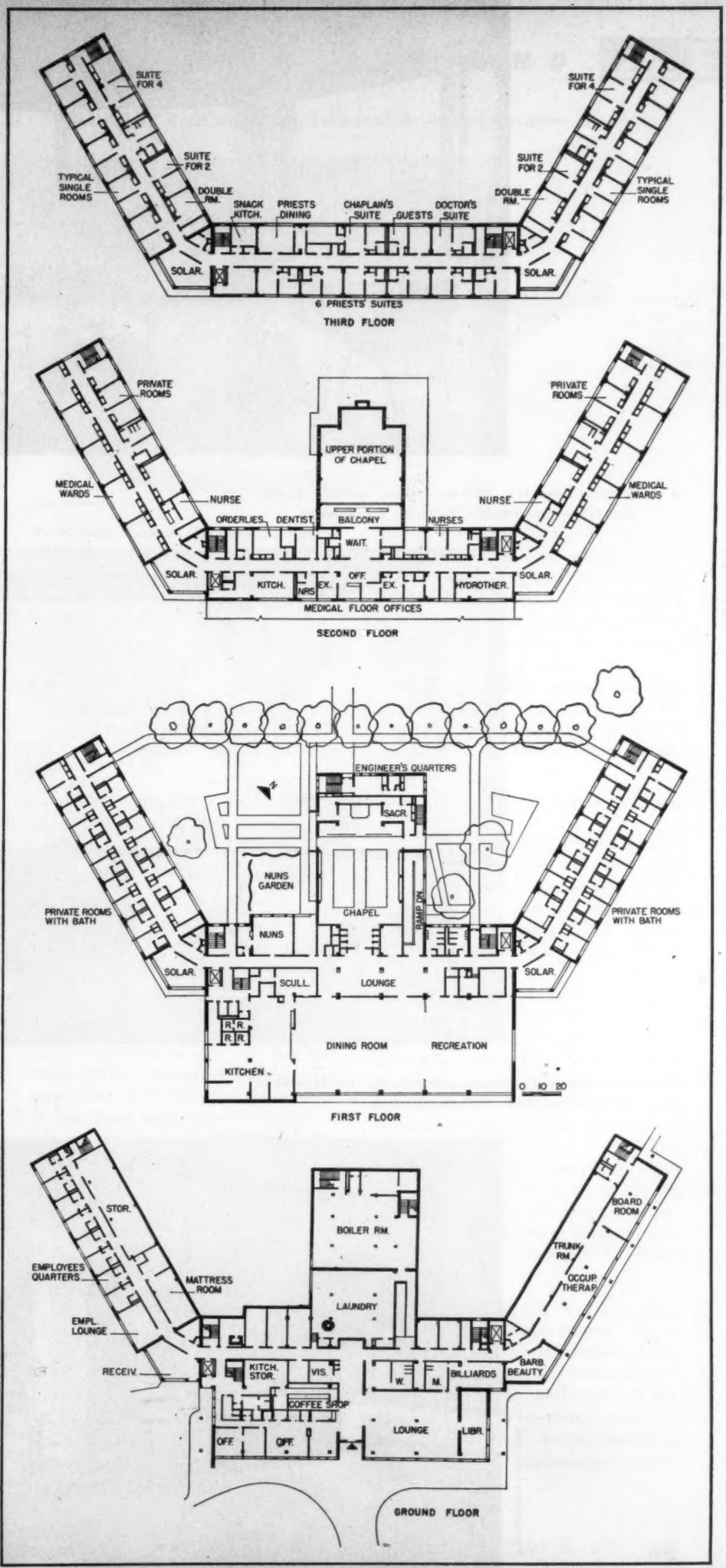
DESIGNED FOR SCIENTIFIC CARE OF AGED

For St. Vincent's Retreat for the Aged, Inc., Archdiocese of Omaha

IT MAY OR may not be incidental to this story that St. Vincent's home won for its architects a national A.I.A. award. At any rate it was planned specifically, after long study, for modern scientific care of the aged, developing its own pattern. In a word, it was to care for the guests completely — physically, spiritually, economically, in a self-contained but non-institutional kind of plant. Medical facilities are adequate for most cases usually called chronics, but not for true hospital cases. Spiritual needs are well provided for, and recreational and occupational needs get a considerable array of facilities. And an environment "both stimulating and homelike," with modern furnishings, was considered part of the ministrations; perhaps the A.I.A. award is not so incidental.

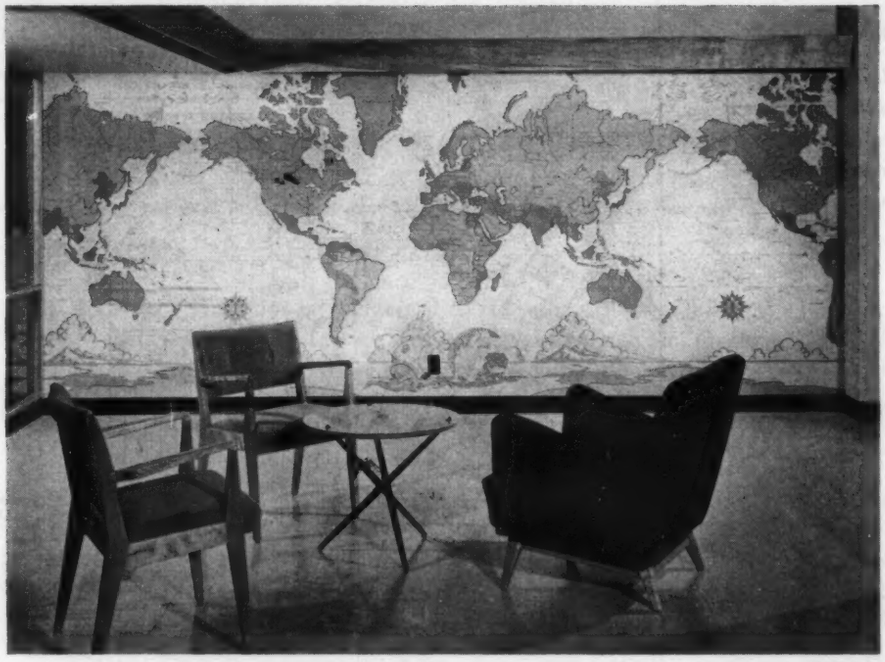
Photographers Associated

Steele, Sandham & Steele
Architects



The site combines advantages of both the "rural retreat" and the activity concepts. It is a high location, with broad views, but in a developing residential section, within walking distance of a park and a baseball diamond where semi-pro games are frequent. Public transportation at the site. Walks wind around the hilly parts of the site; there is space for gardening, croquet, horse-shoes, etc.

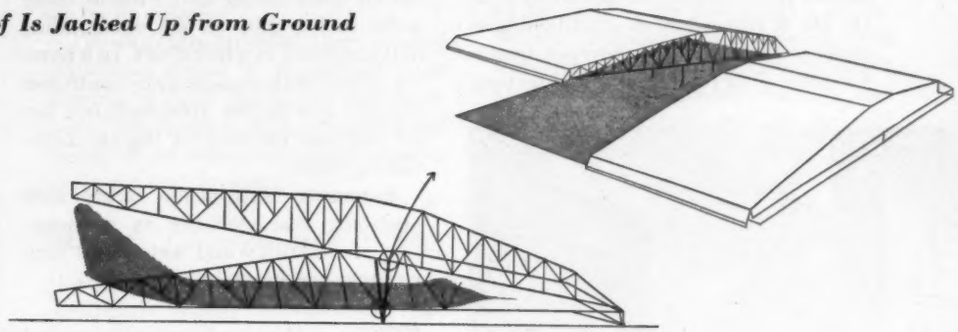
At St. Vincent's, it would seem, nobody insists that old people demand Victorian furnishings



But modern things were chosen, say the architects, to be utilitarian as well as attractive

Photographers Associated

IDEA | ***Cantilevered Hangar Roof Is Jacked Up from Ground***



A cantilevered hangar design thought up by Kristoffer Dannevig of Washington, D. C., has a trussed roof structure hinged at one end and free at the other end so that it can be built at ground level and then jacked up. It is proposed with an eye toward the future to house aircraft of indeterminate size, with expansion a key feature.

The lift may be accomplished by twelve 80-ton jacks, using the Youtz-Slick method, combining two jacks for each column to be raised. After the columns have been secured and the jacks removed, the side walls and doors are attached.

Suggested construction is as follows: A major part is accomplished on a simple scaffolding at a level of 6 ft above the ground. With the foundation and hangar floor serving as an erection platform, the bottom chord of the roof structure is laid out on 6-ft-high "horses" and all steel members are pinned and bolted to form the trusses and beams of the roof. Assembly progresses from back to front of the hangar, with the part of the bottom chord closest to the hinge connection laid first.

After the riveting is completed, the structure is jacked up from the scaffolding and the "horses" removed. In this position the ceiling and all heating ducts and light fixtures are installed at a height of about 6 ft, and the roofing job is done at a maximum working height of 30 ft. Then the structure is jacked to its full height, as shown in the drawings, the lift height being 20 ft.

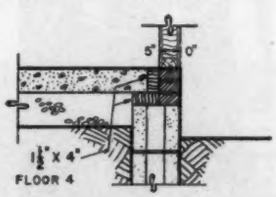
Mr. Dannevig believes that this type of erection method might also be applied to large hall construction by placing two hangars with the front openings facing.

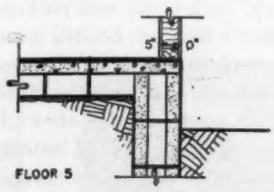
REVIEW | *Effect of Edge Insulation upon Temperature and Condensation on Concrete-Slab Floors*, NBS Building Materials and Structures Report 138. By Harold R. Martin, Paul R. Achenbach and Richard S. Dill. 21 pp. U. S. Government Printing Office, Washington 25, D. C. 20¢

Results of tests conducted during the past two years by the National Bureau of Standards under the sponsorship of HHFA have shown, according to this report, that edge insulation reduces heat less at the exposed edges of concrete floor slabs in basementless houses.

For the tests a special insulated structure was divided lengthwise into two nearly equal compartments by an insulated partition representing an outside wall. One compartment, duplicating conditions inside a basementless house, was floored with different edge-insulated concrete slabs and was heated to simulate house temperatures. The adjacent compartment, representing the area outside the house, was not floored and was refrigerated to an outdoor temperature of either 0 F or 32 F.

During the tests nine different concrete slab specimens were subjected to temperature conditions approximating those to which such floors in basementless houses are exposed in cold weather. Heating equipment produced nearly uniform temperatures over all the test floors. With a simulated outdoor temperature of about 0 F, the temperature of the floors with edge insulation of either fiberboard or rubber board was found to range from 9 to 13 F higher at a point 1 in. from the cold wall, and the average temperature of the 30-in. border next to the cold wall was from 3 to 5 F higher than that of the floor without edge insulation. A slab insulated with a vertical piece of rubber board 2 in. thick and 18 in. deep was found to have the warmest border.





NEWS | ***Integral Wood Frame***

An integral wood frame which combines roof and wall sections has been engineered by Timber Engineering Company for planners of garages, warehouses and similar structures which require maximum post-free work area and high ceiling clearance.

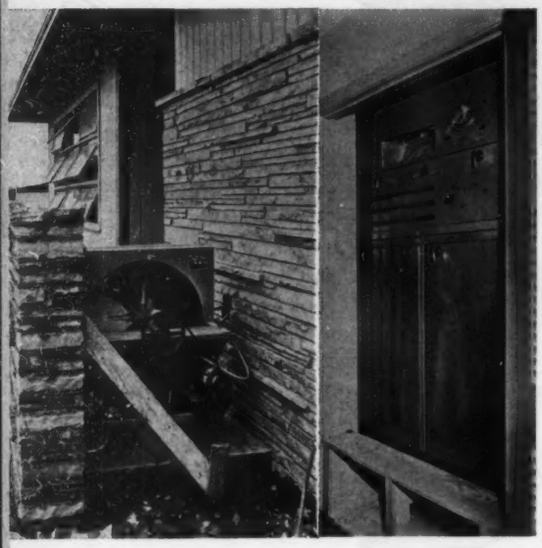
The "arch-frame" typical design provides clear spans of 20 to 30 ft, with wall heights ranging approximately from 8 to 10 ft. The frame will take a roof load of about 30 psf and a wind load of 20 psf. The amount of lumber required for each frame ranges from 67 bd ft for the 20-ft span to 117 bd ft for the 30-ft span. The use of standard 2-in. lumber in 4-, 6-, 8- and 10-in. widths assures economy as well as speed. Copies of the typical design are available from Timber Engineering Co., 1319 18th St., N.W., Washington 6, D. C.

NEWS | A four-day World Symposium on Applied Solar Energy will be sponsored next year at Phoenix, Ariz., by the Association for Applied Solar Energy under the leadership of the Stanford Research Institute, to evaluate present knowledge of the sun's energy in terms of practical applications for individual industries.

AIA ROUNDUP

RESEARCH | ***22 Houses Are Labs for Air Conditioning***

In an "Air Conditioned Village" in Austin, Texas, 22 houses are serving as a "live" laboratory for the study of costs and the many engineering, design, medical and psychological factors involved in the use of year-round air conditioning in medium-priced houses. Seventy manufacturers of air conditioning and housing



materials — not to mention the 22 families who purchased the houses — are cooperating in the research studies, which are sponsored by the N.A.H.B. and will continue until June 1955 under the direction of Ned A. Cole, Austin architect.

The engineering researchers will try to measure scientifically the extent to which operating and maintenance costs of air conditioning are affected by such factors as the siting of the house in relation to the sun, the location of the air conditioning unit, the type of distribution system used and intermittent versus continuous operation of the system. The efficiency of various kinds and thicknesses of insulating materials used in the houses also will be tested, as well as the heat-absorption qualities of different shades of interior and exterior paints.

Houses of practically every kind of single-level design are included in the project. Frame and masonry construction were used, as well as combinations of the two, and interior finishes are both dry wall and plaster.

Twenty-two different systems produced by the country's leading manufacturers are being used in the houses. Both water- and air-cooled condensers are used, and every type of distribution system, including overhead, wall and perimeter registers. The two illustrations show a fan built into a matching stone box in front of a house to cool the air conditioning unit without using water and (right) an air conditioning unit concealed in a hall closet. In a number of houses thermostatically controlled exhaust fans in the attic suck out hot air and ease the load on the air conditioning units.

Automatic instruments record such operating characteristics as consumption of electricity and water, and temperature and humidity changes.

NEWS | Here is a bit of evidence that atomic research is coming to the aid of the building industry. Radioisotope Iodine-131 was added to the water supply of a radiant heating system buried in the concrete slab floor of a single-story house so that gamma radiation would be produced in the water around a rupture in the system. A Geiger counter found the leak. Another use: Manganese-54 helps determine the correct ratio of paint pigments to be mixed together.

NEWS | ***Planning Ahead for Electrical Expansion***

Foresight in the planning of electrical systems is evident in the newer of Metropolitan Life's two buildings on Madison Ave. between 24th and 25th Streets in New York City. Constructed in three units — one in 1932, the second in 1940 and the third in 1950 — the new building was scheduled so that there was enough time between construction periods in which to evaluate the electrical advancement of the period and to plan for electrical demands of the future.

In the twenty years from 1933 to 1953 there was an increase of 265 per cent in consumption of electric current, covering both the old and new buildings. Such an increase, during a period in which air conditioning and almost all new automatic equipment were installed without circuit breakdown, proves the flexibility of the Metropolitan electrical system.

Metropolitan's Electrical Division anticipated increased electrical load by additional transformer capacity to switchboards and supplying larger size conduit than was necessary at different floor levels at each construction.

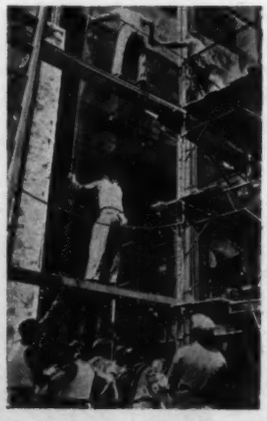
NEWS | ***Two-Story Glass Panes for Bank Are Largest Ever***

The largest sheets of glass ever cast in this country — 22 ft high by 10 ft wide — have been installed as part of the exterior of the new Manufacturers Trust Co. office at the corner of 43rd St. and Fifth Ave. in New York City.

The 22 glass sheets cover the 43rd St. and Fifth Ave. second-floor walls of the five-story building. The glass, set in aluminum and steel frames, is sealed in place and will be washed from a scaffolding arrangement operated from built-in rooftop suspensions. The giant sheets were cast approximately ¾ in. thick and then ground in a bed of plaster of paris and polished smooth. They weigh 1500 lb each. Combined with the 92 panes of ½-in. and ⅜-in.-thick glass panes which enclose the rest of the building, the sheets present a new concept in bank design and construction. There is a virtually uninterrupted 32-ft stretch of glass from the ground to the third floor.

For delivery, each sheet was packed in a special case, which was hoisted onto the scaffolding platform. After the excelsior wrapping was removed, the glass was edged into position by a crew of men using large suction cups and leather belts and operating at four levels. As the glass was eased into the frame, it made contact with a rubber-cork composition gasket which had already been fitted to the molding. A special glazing compound, which accommodates the expansion and contraction of the glass as weather changes, was applied.

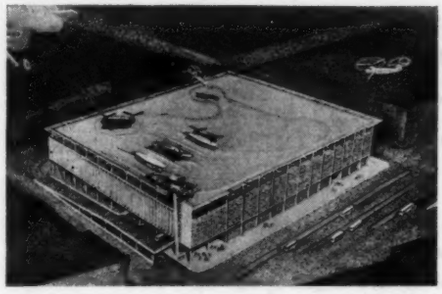
Inside the building a 20-ft cantilever on 43rd St. and an 11-ft cantilever on Fifth Ave. made it possible to limit the number of columns to eight. Skidmore, Owings & Merrill are the architects; Weiskopf & Pickworth, structural engineers; Syska & Hennessy, mechanical and electrical engineers; and George A. Fuller Co., general contractors.



IDEA | ***Rooftop Heliport — Architect-Designed***

Traffic congestion could be alleviated in the downtown sections of major American cities by use of a heliport system based on cable-car and aircraft carrier techniques.

A helicopter would land or taxi onto a turntable, be towed by cable to a loading platform and then take off. Architect John Hans Graham, head of Heliport Consultants of Washington, D. C., and designer of the landing area, envisions about 40 'copters being handled per hour in 500- by 500-ft areas on the tops of downtown buildings. The system is patented by S. Tebbs Chichester, Jr., industrial and interior designer.



Reni Photos

As shown in the rendering, the progress of the helicopter is circular. After landing on the turntable, the helicopter's nose would be turned so that it could be hitched to the cable directing it to its scheduled loading platform. After it is loaded, the helicopter would be towed to either of two take-off locations depending on its course.

The drawing provides three loading platforms, giving a theoretical peak capacity of eight helicopters simultaneously: one landing, six loading and one taking off. An improved system includes electronic tow devices.

NEWS | ***Conveyor-Belt "Lift"***

New York City's first "Man-Lift" — a continuous rubber conveyor-belt elevator — has been installed in the new 300-car underground garage in the Airlines Building at Park Ave. and 41st St.

The five-ply rubber and cotton vertical conveyor belt, 105 ft long and 14 in. wide, serves four levels of the garage. Parking attendants can travel from floor to floor at the rate of 75 fpm by stepping onto non-skid platforms which are located about every 16 ft on the belt. A handle is fastened 4½ ft above each platform for the safety of riders.

A 3-hp electric motor, which can be stopped or started by anyone on or off the lift, propels the conveyor around two pulleys 20 in. in diameter. The man-lift can carry eight persons every minute in both directions.

REVIEW | *Deflection Characteristics of Residential Wood-Joist Floor Systems*, Housing Research Paper No. 30. 34 pp. U. S. Government Printing Office, Washington 25, D. C. 40¢. Factual data, based on laboratory tests sponsored by the HHFA, are presented on the deflection characteristics of conventional wood-joist residential floors. In addition to investigating plaster cracking and vibration, the study includes the role of the floor system in distributing load concentrations between adjacent joists.

NEWS | ***Newest Prefabs Displayed at British Industries Fair: Schools, Warehouses, Houses***

Prefabrication, ranging from schools and warehouses to multi-unit houses, was much in evidence at the British Industries Fair in London and Birmingham last May, according to a report from H. J. Spiwak, Editor of the London Journal *Prefabrication*.

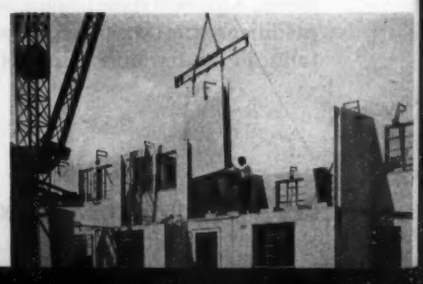
• Of particular interest was a prefabricated school building constructed by the Bristol Aeroplane Co. of aluminum extruded sections for framing and aluminum walls and roof covering. The first-floor classrooms (second floor to us) of the Newell Green Secondary School in Manchester (below, left) are of 24 ft span. Large spans over some sections, such as corners, necessitated the use of prestressed precast concrete beams instead of aluminum.

The standard of daylighting in each of the first-floor classrooms is particularly high because glazed wall units extend the length of each side. Each pair of classrooms has its own approach staircase from the ground floor, thus eliminating the need for corridors.

• A number of buildings from 20,000 to 50,000 sq ft constructed on the suspension principle for supporting structural members have been erected by Buckwyn Constructions Ltd. for British government departments and for export to Ceylon and Pakistan (below, center). A central row of steel masts and two parallel rows of outer masts under the outer eaves provide the main support of the building. Special steel cables suspended over the masts and fixed to concrete anchorage foundations replace heavier steel sections to provide bracing, offering the advantage of reduced material costs, light weight and suitability for transport.

• A prefabricated building process using large precast concrete panels has been developed by Reema Construction Ltd. Vertical and horizontal cavities in the panels provide ready-made forms into which concrete is poured for columns and reinforced ring beams (right).

(Roundup continued on page 228)



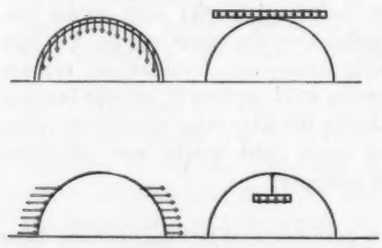
THIN SHELLS

In Article 1 thin shells were considered from the viewpoint of structural behavior and form. This article is a detailed study of the forces and loads acting on thin shells together with a rational approach to their stress distribution. The purpose is to give an insight into what kinds of stresses there are in different shells, to show that calculation methods are not difficult, and to indicate the magnitude of stresses.

By Mario G. Salvadori
Professor of Civil Engineering
Columbia University

ARTICLE 2 EFFECTS OF LOADS AND FORCES

THIN SHELLS are usually employed to cover wide floor areas and must be designed to support: (1) their own dead load; (2) a live load, commonly due to snow; (3) pressures and suctions due to wind; and (4) concentrated loads due to special equipment.



Moreover, so-called "secondary stresses" are often induced in thin shells by the shrinkage of the concrete, uneven settlements of foundations, temperature differentials between various elements of the structure, and by the continuity between shell and its supporting elements. Although these loading and stress conditions are considered in all structures, it is interesting to note from the outset that *the secondary stresses are in most cases the determining factors in shell design.*

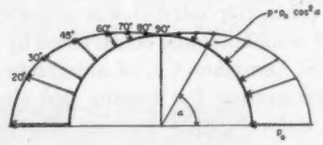
Rigorous consideration of all the preceding conditions would make shell design an almost insurmountable mathematical problem, and the reader may wonder whether it is possible at all to consider thin shells for moderately large buildings, without incurring prohibitive engineering design expenses. It will be shown that such is not the case. Although the design of a large hangar, spanning hundreds of feet, is a major engineering task, to be entrusted only to a designer familiar with its theoretical and practical difficulties, it cannot be overemphasized that the *fundamental principles of shell design are simple* and that *shells of moderate dimensions can and should be designed by the average engineer without any more caution than required by any other structure of the same dimensions.*

SHELL LOADS

In what follows, the dead load will be considered specifically for a thin curved slab of reinforced concrete, since for this material it is, possibly, the most important load, but of course the discussion applies to other materials as well.

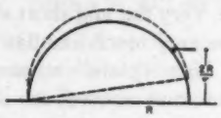
The live load is usually a snow load of intensity specified by local codes. It is commonly assumed as a uniform load per unit area of horizontal shell projection, while the dead load is a load per unit area of sloping shell.

The wind load is important for very large shells, but can be neglected usually in small buildings, particularly if the

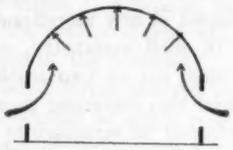


shell is relatively flat. When it is not flat, the wind pressure is customarily assumed to vary in relation to the angle between the tangent to the shell and the horizontal (more exactly as the cosine or square of the cosine of the angle, see above). Thus, for purposes of calculation, the wind becomes a perpendicular

pressure on the windward side and a perpendicular suction on the lee side. Many codes allow the wind to be neglected by lowering the allowable stress, but for simple shell shapes it is not difficult to determine the maximum



stresses due to the wind. It should not be forgotten that the complete building must be checked against the tipping force of the wind, and that the shell, if very large and subjected to strong winds, should be designed for the under pressure due to a wind capable of blowing



out the windows. Wind pressure from below can be considered as an upward uniform load and the stresses can be determined by the formulas for snow loads.

Quite often the shell is flat enough to allow dead load and snow load to be combined so that the total stresses can be checked by means of a simple set of formulas. Although approximations are thus introduced in the computations, the uncertainties of concrete design justify completely this kind of simplification. Moreover, shell stresses are usually checked just at a few critical points, since only a very complex job would justify the evaluation of stresses all over the shell.

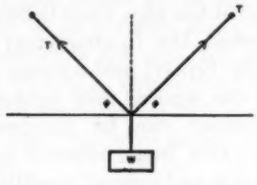
Very seldom are shells designed for specific concentrated loads. Not only do concentrated loads rarely occur, but also a well designed shell, in which the reinforcement required for temperature changes and shrinkage is sufficient, will easily sustain additional concentrated loads. Such loads and holes are taken care of by additional reinforcement, and this can be done on the basis of flat slab practice, since in a small area the curvature of the shell can be ignored.

Foundation settlements are not usually considered in an elementary design, since thin shells are particularly resistant to this exceptional type of disturbance, as will be seen later.

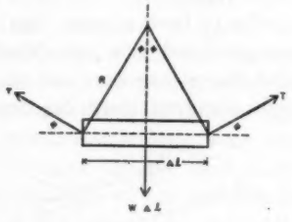
The loading conditions discussed above determine in almost all cases a minimum thickness that may have to be increased for practical construction reasons, or because of secondary stresses. Regulations concerning temperature and shrinkage usually determine the minimum amounts of steel, and this also may have to be increased near the edge of the shell because of secondary stresses. These stresses will be discussed later after it is shown how the thin shell carries principal loads.

SHELL STRESSES

In order to picture how the internal stresses of a thin shell may carry loads, we will consider the analogy of a thin wire, attached to two fixed points and carrying a concentrated load. The wire deflects under load and the load is car-



Thin wire carries concentrated load



$$2T \sin \phi = w\,\Delta l$$

$$T = w\left(\frac{\Delta l}{2}\right)\frac{1}{\sin \phi}$$

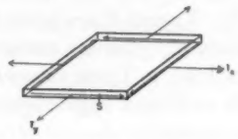
$$\sin \phi = \frac{\Delta l}{2}\Big/R$$

$$T = w\left(\frac{\Delta l}{2}\right)\left(R\Big/\frac{\Delta l}{2}\right) = wR$$

ried by tension of the wire. The tension forces in the segments of wire adjoining the load are equal, and the vertical components of the tension forces must equal load W for equilibrium. Similarly there is shown a small length of cable Δl, in equilibrium under its own weight, w lb/ft. From the figure it can be easily seen that the tension is directly proportional to the radius of curvature R of the cable: the larger R, the larger the tension; the smaller R, the smaller the tension.

Membrane Stresses

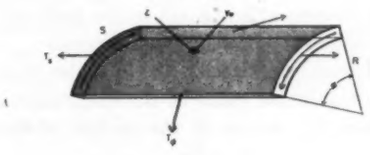
In a small rectangle of sides Δx and Δy cut out of a membrane and loaded with a pressure p per unit area (below), the internal forces per unit length acting on the sides of the rectangle can only be tension or compression forces T_x and



T_y perpendicular to the sides, and shears S parallel to the sides. (A membrane can only develop direct stresses; bending is impossible.) The stress analysis of the membrane consists in determining at each point of the membrane the three internal stresses T_x, T_y and S capable of carrying the load. This can be done in all cases by means of three equations of statics, so that membrane stresses are "statically determinate," and their analysis is not difficult mathematically.

Stresses in Cylindrical Shells

Assume that a small element cut out of a cylindrical shell has sides parallel and perpendicular to the cylinder axis, and consider the load applied to the element split into two components, one Z lb/ft² perpendicular to the shell surface, and the other Y lb/ft² tangent to the shell cross section.



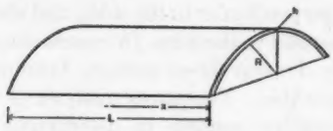
The component Z must be balanced in the transverse direction by the stresses on the cuts parallel to the cylinder axis. The situation is identical with the equilibrium of the cable under its own weight, and the equation giving the stress T_ϕ per unit length is:

$$T_\phi = -Z \cdot R \qquad (1)$$

where R is the radius of the cylinder at the point considered. If Z acts into the

cylinder, as is the case for dead and live loads, the stress T_ϕ will always be compressive (conventionally given a negative sign), while it will be tensile (positive sign) for loads directed outward.

The other two equations of equilibrium which determine stress in the longitudinal direction T_x and shear S are not elementary, and are derived by mathematics beyond the scope of this article. In order to indicate the kind of stress distribution obtained by the three equations of equilibrium, the values of the stresses T_ϕ, T_x and S are given for the case of circular cylinders under a uniform snow load, p. These values may be used with sufficient approximation for dead load as well.



Membrane Stresses for Cylindrical Shells *

$$T_\phi = -pR\cos^2\phi \qquad (2)$$

$$T_x = -\tfrac{3}{4}\,pR\left(\frac{L}{R}\right)^2\left[\tfrac{1}{4} - \left(\frac{x}{L}\right)^2\right]\cos 2\phi \qquad (3)$$

$$S = -\tfrac{3}{2}\,pR\left(\frac{x}{R}\right)\sin 2\phi \qquad (4)$$

$$T_{\phi\,\max} = -pR$$

$$T_{x\,\max} = \pm\,\tfrac{3}{8}\,pR\left(\frac{L}{R}\right)^2$$

$$S_{\max} = \pm\,\tfrac{3}{4}\,pL$$

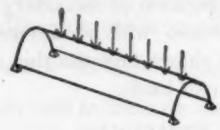
* All values in lb/in.

By means of the formulas of the table, the stresses at any point in the shell can be determined by simple arithmetic.

It can be seen from the formulas that the maximum value of the longitudinal stress, T_x, occurs at the middle of the shell and is compressive at the top and tensile at the edge. The transverse stress T_ϕ is independent of the location along the axis, is maximum at the top and zero at the edge, and is always compressive. The shear S is maximum at the shell ends at an angle of 45° measured from the top.

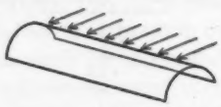
Diagrams of Maximum Stresses

But a simpler way of checking the thickness and the reinforcement in the cylindrical shell is available. This can be done by considering the shell as a



simple beam of semi-circular cross section, weighted by snow load p, and determining the maximum longitudinal stresses and the shear by simple beam theory. The stresses T_x and S thus obtained are identical with the values given in the table at the top of the shell and at the edge. Once these stresses are checked, the T_ϕ stress may be obtained by Eq. (1) and a rough evaluation of the required shell thickness and reinforcement can be obtained very quickly. This beam behavior holds for other loads and support conditions provided the length is more than five times the shell radius.

In order to have a rough idea of the stresses produced in a cylindrical shell by wind forces, one may use the same principle discussed above for dead and



live loads. The formula for a beam of semi-circular cross section gives the following compressive and tensile stresses due to wind:

$$T_{x\,\max} = \pm\,\frac{1}{4\pi}\,p_w\,\frac{L^2}{R} \qquad (5)$$

$$S_{\max} = +\,\frac{2}{\pi}\,p_w L$$

where p_w is wind pressure required by code. It will be noticed that these stresses are usually very small, and can be neglected.

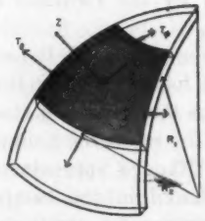
Convenient tabulations of membrane stresses in circular cylindrical shells under a variety of loads appear in a recently published manual of the American Society of Civil Engineers on *Design of Cylindrical Concrete Shell Roofs* (*Manual of Engineering Practice No. 31*).

Analysis of short shells is not difficult, since here the essential stress T_ϕ can always be checked by Eq. (2), while the longitudinal stresses are of minor importance. Very flat and short shells tend to behave very much like flat slabs and develop high "plate" stresses; hence their membrane stresses are minor and evaluation is unimportant.

In all cases, secondary stresses must be added to the membrane stresses since they are critical in determining thickness and reinforcement near the boundary.

Stresses in Circular Shells

If a shell of rotation (circular shell) is loaded by its own weight or by a symmetrical snow load, no shear stress will be developed in any meridional section because of shell symmetry, so that a piece of shell cut by two adjoining meridians and two adjoining parallels will be maintained in equilibrium by only two internal forces, the meridional force T_ϕ and the parallel or hoop force T_θ. In the drawing below the radius of cur-



vature of the meridian is R_1, the radius of the parallel is R_2, and the perpendicular component of the vertical load is Z. Equilibrium of the shell in the direction perpendicular to its surface requires that:

$$T_\phi/R_1 + T_\theta/R_2 + Z = 0 \qquad (6)$$

For the case of spherical domes, where $R_1 = R_2 = R$ (radius of the sphere), this equation reduces to:

$$T_\phi + T_\theta + RZ = 0 \qquad (7)$$

It can be shown also that:

$$T_\phi = -\,W/(2\pi R_2 \sin^2\phi), \qquad (8)$$

where W = resultant of all loads from top of shell to the parallel considered.

Once T_ϕ is obtained from this last equation, T_θ can always be derived from Eq. (6).

To get an idea of the nature of dome stresses, let us see what happens in a half-sphere whose weight per unit area is w. We find from Eq. (8) that:

$$T_\phi = -2\pi wR^2/2\pi R \sin^2\phi \quad (9)$$
$$= -wR \text{ (at the boundary since } \phi = 90°; \sin\phi = 1)$$

The meridional stress is compressive since it is negative in sign.

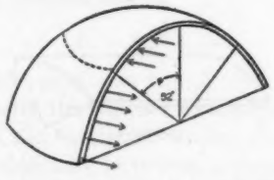
To find out T_θ we go back to Eq. (7) and need an expression for the component Z in terms of the weight per unit area w. This can be seen to be:

$Z = w \cos\phi$. Then:

$$T_\theta = -RZ - T_\phi$$
$$= -Rw\cos\phi - (-wR) = wR$$
(at the boundary where $\phi = 90°$; $\cos\phi = 0$) (10)

The hoop stress T_θ is tensile, since it is positive, and reinforcement will have to be provided at the boundary.

If the same stress analysis is carried out for a parallel at angle ϕ, it will be found that the meridional stress T_ϕ is always compressive while the hoop stress is compressive up to an angle equal to 52° from the top, while it is tensile



below this angle. This indicates that spherical shells will develop only compressive stresses if their angle is less than 52°, while tensile hoop stresses will appear when the angle is over 52°.

Similar results are found for the case of a uniform snow load on a semi-spherical shell. The meridional stress is always compressive and equals $-wR/2$ at the boundary. The hoop stress is compressive from the top down to 45°, and becomes tensile from then on, reaching a maximum value equal to $+wR/2$ at the boundary.

Values for stresses in shells of revolution can be found in *Design of Circular Domes* by the Portland Cement Assoc.

Wind Forces

The evaluation of wind stresses is theoretically more complicated, but the only result of practical importance is very simple. A wind of intensity p_w psi creates no perpendicular stresses at the boundary of a semi-spherical dome, but only shear stresses S, whose maximum value in the direction of the wind equals:

$$S_{w\,max} = \tfrac{3}{8}\, p_w R \quad (11)$$

Apart from the boundary conditions to be taken up later, it is seen that the stress analysis of a circular shell is extremely simple.

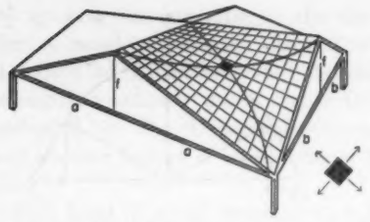
Stresses in Saddle Surfaces

The stress distribution in saddle surfaces cannot be written easily in general terms, but it is extremely simple for the shape most commonly used, the hyperbolic paraboloid. It is ideally suited to cover rectangular areas. A roof having four paraboloid sections is at top right. Calling $2a$ and $2b$ the sides of the rectangle to be covered, and f the rise at the center of the area, the principal stresses T_x and T_y due to dead load act along the diagonals of the rectangles and at right angles to them. They are given by:

$$T_x = wab/2f;\ T_y = -wab/2f \quad (12)$$

These equations demonstrate the most important structural property of the hyperbolic paraboloid: *this surface develops, under its own weight, stresses which have the same value all over the surface.* Since membrane stresses were already found to have 100 per cent *local* efficiency, and since we now find that every point of the paraboloid is under the same state of stress, it may well be said that this surface has also an *over-all* efficiency of 100 per cent.

The typical way in which a saddle shell balances the load is clearly illustrated by Eq. (12). The two principal stresses T_y are compressions, while the other two, T_x, are tensions. Hence the shell acts in the y-direction as an inverted cable or thin arch, while in the x-direction the shell behaves like a tension cable. This also explains the great stiffness of such shells: as the shell deflects and tries to buckle under force of compressive stresses in one direction, it is prevented from doing so by an increase in the tensile stresses in the other direction.



Moreover, it can be proved that the stresses in the direction of the sides of the rectangles are pure shears:

$$S = wab/2f \quad (13)$$

These shears, independent of location, are balanced on the shell boundary by trusses whose elements are under direct stress only.

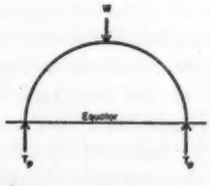
Since the hyperbolic paraboloid is usually built with a small rise, the formulas given above can be used also for determining stresses due to snow load; in view of the flat shape of these roofs, wind stresses can usually be neglected.

Their perfect stress efficiency, the simplicity of their stress analysis, the ease with which the stresses can be balanced on the boundary, and the fact that forms for hyperbolic paraboloids can be built of straight planks, make this surface ideal for shell use.

Boundary Stresses

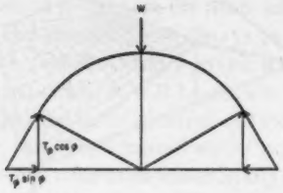
It was noticed in this and the preceding article that membrane stresses may not be capable of sustaining the load in the vicinity of the shell edge because of the conditions of support and restraint. It is easy to see why this is so in a particular case.

Take a semi-spherical dome under the action of its own weight, supported on a circular wall. Since the T_ϕ stress at the boundary is vertical, the wall reaction (assumed vertical) will balance the stress, and, if the shell boundary is



allowed to move freely due to load, the stress will be of the membrane type everywhere.

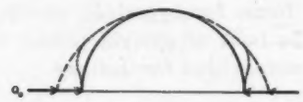
If instead, the shell has an angle ϕ less than 90°, again resting on a wall capable of vertical reactions only, it is seen that the horizontal component of



T_ϕ cannot be balanced by the wall reaction. An additional set of stresses must be added to the membrane stresses to wipe out the horizontal component of T_ϕ. Unavoidably this will introduce bending stresses in the shell.

But even if the shell is semi-spherical,

in most cases bending stresses will exist around its boundary. In fact, under its own weight, the shell will expand, and points on its boundary will move outwards. If this motion is freely permitted, membrane stresses are possible. But if it is prevented either by friction of the

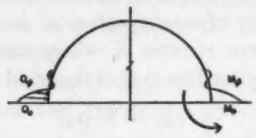


supporting wall or by a ring beam (usually built around the boundary of a shell) a force toward the center of the shell will act all around its boundary and produce bending stresses in it.

It is thus seen that bending stresses in the shell may be due either to the type of boundary reaction or the prevention of motion of the boundary. *These bending stresses do not penetrate deeply into the shell, but are localized to the immediate neighborhood of its boundary.* For this reason they are called "boundary disturbances."

Here is an intuitive explanation for such local action: If the shell cannot expand because a uniform horizontal force is applied at the boundary, the force applied to each small element of boundary will be balanced by the force applied to the opposite small element. Thus the system of boundary forces is in equilibrium, and cannot influence stresses far away from the boundary. (This is called "de Saint Venant's principle.")

A study of the shears created in the shell by the boundary forces shows that these shears peter out rapidly and that, moreover, *their distribution into the shell is oscillatory and damped. This type of behavior is typical of all boundary disturbances in curved shells.*



If the boundary of a semi-spherical shell is compelled to remain vertical by means of a stiff ring, bending moments will be applied to the ring by the shell. These bending moments also die out quickly and have a "damped" oscillating behavior.

While evaluation of boundary forces, moments and of bending stresses caused by them is somewhat complicated, tabular results have been obtained by the writer and his students for circular shells encountered most often.

In the extreme case of a semi-spherical shell whose boundary is prevented from moving outward, the bending moment per unit of length at the boundary can be proved to equal

$$M = 0.1443\,phR \quad \text{(in.–lb/in.)} \quad (14)$$

where p is the uniform load (psi), h thickness of shell and R its radius. Since for most other cases the boundary moment is smaller than given above, a rough check may be obtained by Eq. (14); the dead load may be included in the value of p.

Boundary forces of the same type may be due to temperature differentials and shrinkage. For example, if the concrete shrinkage is prevented by a stiff boundary ring, bending moments will be created around the boundary. Calling d the movement of the shell boundary due to shrinkage or temperature differential, the boundary moment per unit length is given by:

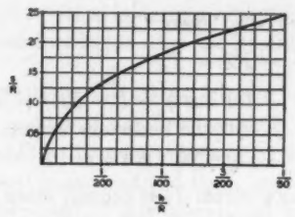
$$M = 0.2886\,Eh^2d/R \quad \text{(in.–lb/in.)} \quad (15)$$

where E is the modulus of elasticity of concrete.

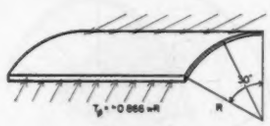
This behavior of boundary forces and moments is typical not only of uniform distributions around the boundary; even if the forces and moments vary from point to point, they die out rapidly into the shell and will not affect more than a small portion of it. The quantity which indicates how rapidly the bending stresses vanish is directly proportional to the square root of the radius times the thickness. Thus if $\sqrt{Rh}$ is small, the stresses vanish rapidly. A simple formula for the approximate evaluation of stress penetration is:

$$s = 1.8\sqrt{Rh} \quad (16)$$

For a shell thickness of $\frac{1}{100}$ of the radius, this gives a penetration s of the order of $0.18R$; for a shell thickness equal to $\frac{1}{300}$ of the radius the penetration is reduced to $0.08R$ (see graph).



The same phenomena observed on the boundary of spherical shells occur at the boundary of cylindrical shells, whenever the reactions or displacements are not identical with those produced by membrane stresses. For example, consider the membrane stresses for the case



of a cylindrical shell under dead load. If the shell has an angle ϕ equal to 30°, the T_ϕ stress on the longitudinal boundaries of the shell would equal $-0.866wR$. When the shell is hung from two end stiffeners, the longitudinal boundary is free and there is no way of balancing the T_ϕ there. Therefore, bending stresses will be developed capable of producing forces equal and opposite to $-0.866wR$. These forces produce shear and moments which penetrate the shell, but only to a limited extent. No elementary formulas for the evaluation of boundary forces and bending stresses in cylindrical shells can be given, but the designer may figure them out easily by means of the tables contained in the ASCE manual, *Design of Cylindrical Concrete Shell Roofs*.

Bending stresses may occur for other reasons and at other than longitudinal boundaries in cylindrical shells. They

should always be checked, and are easy to evaluate. For example, a difference in shrinkage between the thin shell and the thick rib is almost always to be considered: if the differential radial displacement at the worst point in the shell due to this cause is d, the corresponding maximum bending moment may be computed by Eq. (15).

Two additional causes of bending stresses in cylindrical shells will be mentioned here. The end stiffeners or arches, which actually support the shell, deflect under the loads transmitted to them by the shell and carry these loads down to the foundation by means of direct and bending stresses. In computing the bending stresses in the stiffeners it must be realized that any bending of the stiffeners will be accompanied by bending of a

portion of shell attached to them. The stiffener acts as if it were somewhat "stiffened" by the shell. The minimum width of shell participating in this bending action is called the "effective width" b_e of the shell and is:

$$b_e = 0.38\sqrt{Rh} \qquad (17)$$

Indicating now by f_ϕ the bending stress in the stiffener with participating shell, the maximum bending moment in the shell may be proved to equal at the most:

$$M = 0.28h^2 f_\phi \quad \text{(in.–lb/in.)} \qquad (18)$$

Bending stress is also caused by the contraction of the shell due to the transverse force T_ϕ. This is prevented at the stiffener by the rigidity of the stiffener in its own plane. The bending moment can be calculated by Eq. (18) by taking f_ϕ to be equal to T_ϕ/h.

The simple results on the boundary interaction of shell and stiffening elements given above cover only a few of the cases that may be encountered in practice. But the designer should be aware of bending stresses and should provide for them by suitable increases in thickness and by additional reinforcement. Elementary formulas are available to determine bending stresses, and the mystery shrouding thin shell design should vanish rapidly, even when these refined points are taken into account.

Buckling

Whenever a very thin structure is acted upon by compressive stresses, the danger of "buckling" is present. Buckling is the phenomenon by which a thin element will deflect laterally under the action of purely compressive and centered forces.

The danger of buckling cannot be studied by assuming the existence in the shell of membrane stresses only. Hence, a complete solution assuming the shell to develop both membrane and bending stresses is necessary and this presents great mathematical difficulties. Luckily, it is possible to give simple formulas for rough check of buckling in shells. Their use is imperative, since a buckling shell will collapse inward under the applied loads and will in most cases become a tension membrane. Unless the material the shell is made of can take locally a complete reversal of stress, the shell will certainly be destroyed.

For the case of spherical shells or shells of revolution the value of the uniform compressive stress capable of producing local buckling equals

$$f_{cr} = 0.58Eh/R \quad \text{(psi)}$$

If the maximum compression in the shell is less than one-third of this value, the shell may be considered safe. Hence a safe compressive stress for buckling is:

$$f_{cr} = 0.2Eh/R \qquad (19)$$

For non-spherical shells R should be taken to be the radius of the sphere tangent to the shell at the point considered.

For long cylindrical shells the longitudinal compression at the top may be critical and should be not more than:

$$f_{cr} = 0.2\,Eh/R \quad \text{(psi)} \qquad (20)$$

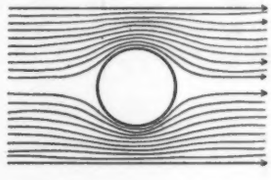
For short cylinders the transverse compression $f_\phi = T_\phi/h$ may become critical and should be checked against the Lundgreen formula:

$$f_{\phi\ cr} = f_T/\left[1+\frac{2840+f_T}{7{,}100{,}000}\left(\frac{L}{h}\right)\sqrt{\frac{R}{h}}\right] \quad \text{(psi)} \qquad (21)$$

where f_T is the concrete 28-day strength in psi, L the distance between stiffeners, and all lengths are in inches. A factor of safety of three should be sufficient.

The Lundgreen formula may be used to check the buckling strength of other types of shells, including saddle shells, by ignoring the curvature in the direction of tensile stresses. In this last case it should be remembered that the shell strength is actually much higher than indicated by the Lundgreen formula and smaller factors of safety should be used.

It is hard, if at all possible, to take care scientifically of the stresses set up in a shell by a settling of the supports. But one more essential property of shell design comes again to our help in this case. It is well known that if a one-dimensional structural element, as a beam or a column, is overstressed locally and starts failing, it will collapse in almost all cases. This is because the stresses in the element have no way of being redistributed. On the other hand, if a two-dimensional structure is overstressed locally, it can still sustain loads. This is because overstressing produces yield and yield produces in turn a redistribution of stress. Consider a shell under load in which we pierce a hole: the lines of stress that went through the material in the hole will now swerve around the hole, channeling more load to the regions about the hole and permitting the same total load to be successfully carried to the ground.



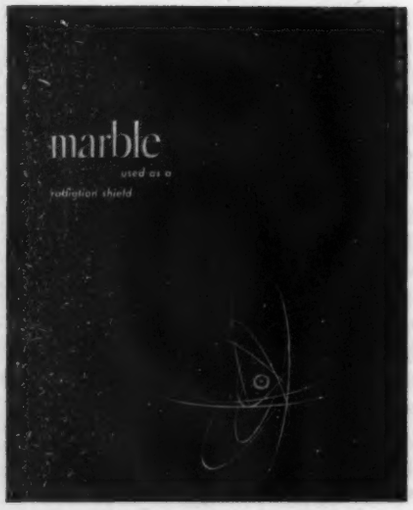
The possibility of stress redistribution makes thin shells much stronger than is shown by theoretical calculations. During the war a thin cylindrical shell sustained on columns was "shelled" and a projectile cut through one of the supports: the shell adapted itself to this new situation, by cantilever action from the remaining supports, and did not fail.

The simplicity of the design formulas gathered in this article and the really amazing reserve of strength typical of thin shells should give the architect complete confidence in their design, whether the material used be reinforced concrete, steel, plastic or wood. The next article will show how architects the world over have already found this confidence and have built some of the most extraordinary structures of the modern age by means of thin shells.

MARBLE . . . in the ATOMIC AGE

• Nuclear energy, too often thought of as a force of destruction, is being harnessed also for the good of mankind. Developments in the field of nuclear therapy, which are providing new methods of controlling the ravages of disease, are providing as well problems of building design for housing radiation equipment.

In *Marble Used As a Radiation Shield* Dr. Marshall Brucer, Chairman of the Medical Division of the Oak Ridge Institute of Nuclear Studies, provides the architectural and medical professions with a basis for the safe selection of shielding materials. The facts and figures included in the study offer authoritative data revealing that marble is a desirable material for a radiation shield and also that it is economical for most uses. Further information on the economy of marble is contained in two other brochures: *Proof That Marble Costs Less . . .* and *Further Proof That Marble Costs Less . . .* 32 pp, illus. *Marble Institute of America, Inc., 108 Forster Ave., Mount Vernon, N. Y.**



* *Other product information in Sweet's Architectural File, 1954*

WINDOWS

• *Peterson Horizontal Sliding Aluminum Windows* includes cutaway illustrations of the new window showing such features as the ball-bearing rollers and double weatherstripping. The catalog has a chart showing the 50 standard sizes and contains information about stacking and transom arrangements. 8 pp, illus. *Peterson Window Corp., 1377 E. 8 Mile Rd., Ferndale 20, Mich.**

ARCHITECTURAL LETTERS

• *Bronze and Aluminum Letters* displays six full alphabets in different styles, five of which are available in both oval and flat face. The letters are all 1 in. high and are reproduced in outline for easy tracing to scale. Accompanying each alphabet is a table of dimensions of letter heights, face stroke and letter depths. 12 pp, illus. *Oregon Brass Works, 1127 S. E. 10th Ave., Portland 14, Ore.*

WHITEPRINTER

• *Copymaster Office-size Whiteprinters* tells how the Copymaster produces blackline and colored-line ammonia-dry whiteprints continuously or intermittently. Full details, including dimensions and operating techniques, are included in the bulletin. 4 pp, illus. *Peck & Harvey Mfg. Corp., Chicago 45, Ill.*

CONCRETE FLOORS

• A step-by-step pictorial sequence in *Concrete Floors Now . . . and For the Future* describes the Kalman absorption process method of installation of heavy-duty concrete floors. Examples of successful applications from factories, warehouses, food and dairy plants, schools and hospitals are included. 24 pp, illus. *Kalman Floor Co., 110 East 42nd St., New York 17, N. Y.**

BUILDING SANDWICH

• *Bondolite*, a high-strength, lightweight sandwich structural material, is described in a 32-page illustrated brochure. Structural, decorative and special applications in such fields as building and furniture construction and transportation are covered. *Goodyear Aircraft Corp., Akron 15, Ohio.*

FASTENINGS

• *Fastening of Gypsum Wallboard with Threaded Nails*, test results of a research project sponsored by the Independent Nail and Packing Co., of Bridgewater, Mass., shows the holding power through gypsum wallboard into lumber of various kinds of threaded nails as compared with plain-shank nails. *Wood Research Laboratory, Virginia Polytechnic Institute, Blacksburg, Va.*

• Ramset offers a complete file — *AIA File 17F* — of information for architects. This file is made up of five parts: (1) *Modern Fastening Methods*, an exhaustive application manual (28 pp, illus); (2) eight detailed application bulletins, giving fastener and powder charge specifications for specific jobs; (3) 38 pull-out tests of fasteners in various thicknesses of steel and various strengths and mixes of concrete; (4) results of three Underwriters' Laboratories tests; (5) test reports by Trundle Engineering Co. and Case Institute of Technology. *Ramset Fasteners, Inc., 12117 Berea Rd., Cleveland 11, Ohio.**

RESIDENCE ELEVATOR

• *Sedgwick Lectro-Lift* gives a general description of the operation and purpose of this residence elevator. Specifications and photographs showing typical installations are included. 4 pp, illus. *Sedgwick Machine Works, 150 West 15th St., New York 11, N. Y.**

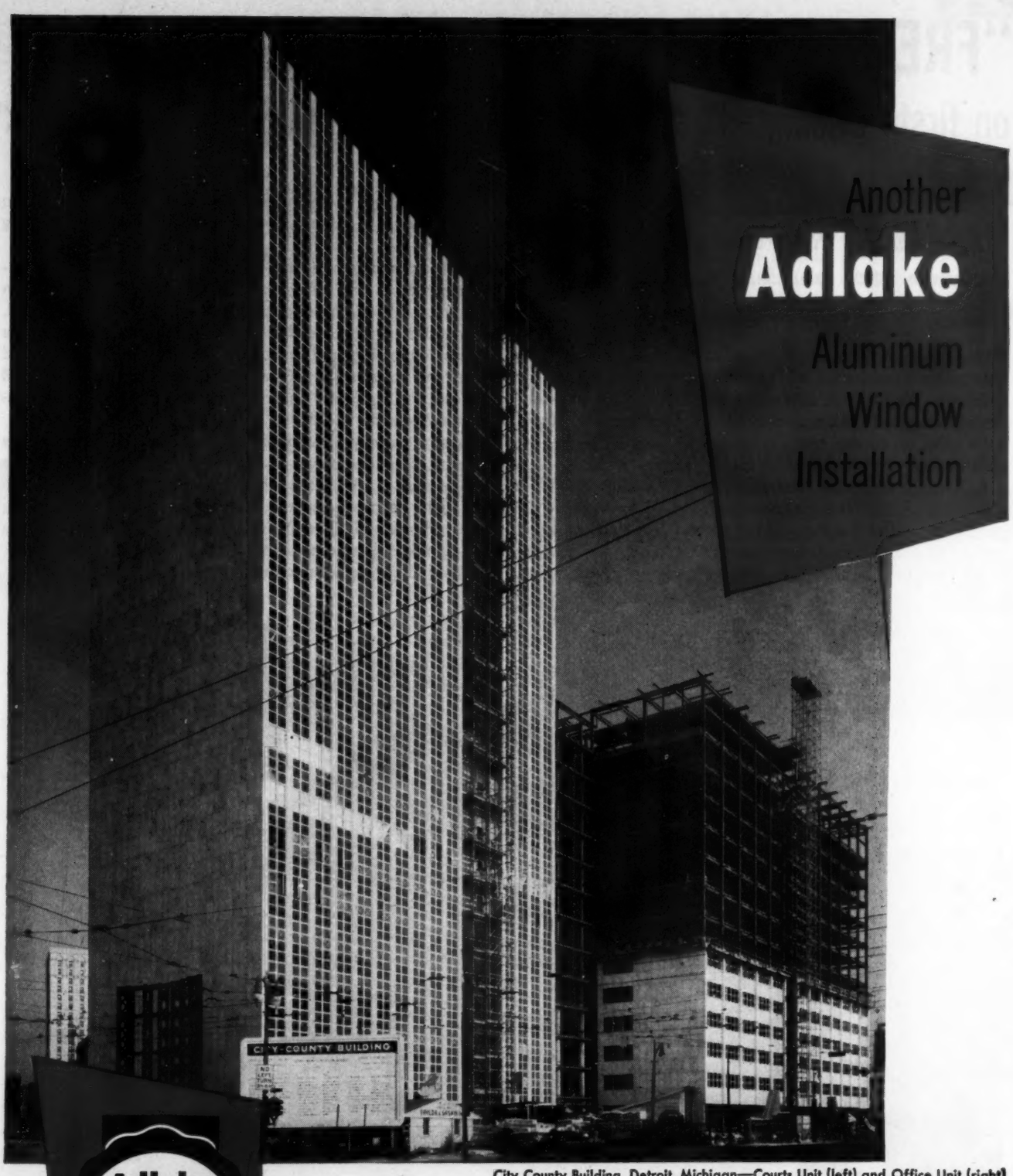
REMOTE CONTROL WIRING

• *GE Remote Control Wiring System* describes how this low-voltage system of controlling lights from central locations works. 12 pp, illus. *General Electric, Construction Materials Div., Bridgeport 2, Conn.**

MASONRY PRESERVATION

• Amply illustrated with job-site photographs, a booklet prepared by *The Penetryn System, Inc.*, specialists in the preservation and restoration of masonry structures, describes several actual rehabilitation jobs. Six case histories illustrate solutions to stated problems. 28 pp, illus. *The Penetryn System, Inc., 2294 Scranton Rd., Cleveland 13, Ohio.*

(*Continued on page 274*)



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Harley, Ellington & Day, Architects—Bryant & Detwiler, General Contractors.

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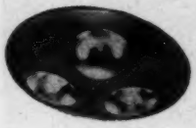
HEATERS, COOLERS — others on pages 252 and 256

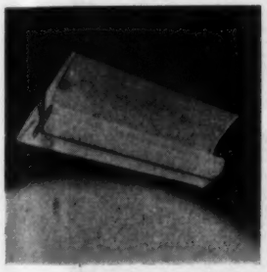
CEILING HEATER



• The *Pryne ceiling heater* directs infrared heat rays from heat lamps in the ceiling to the floor. Available in 1- and 3-lamp models, the recessed heater is recommended for bathrooms and other areas where wall space is limited. *Pryne and Co., 142 No. Towne Ave., Pomona, Calif.*

LIGHTING — others on page 260

LIGHT AND SOUND CONTROL



• *Sono-Lume* fluorescent lighting fixtures provide in a single installation, according to the manufacturer, high-level illumination and reduction of room noise. The fixture's sound-control element consists of perforated steel wings behind which are installed blankets of preformed glass fibers. The fixtures are available in 4- or 8-ft lengths, with all-metal light-reflecting surfaces finished to assure minimum reflectance of 86 per cent. *Sylvania Electric Products Inc., 1740 Broadway, New York 19, N. Y.*

BUILDING MATERIALS — others on pages 264, 268, 270

PLASTIC BUILDING PANEL

• *Chem-O-Glas building panels* are now available in *Kingsize*, claimed by the manufacturer to be the largest ribbed fiber glass panel. The Kingsize panel measures 12 ft long by 48 15/16 in. wide with 3/4-in. ribs every 8 in. apart. Shatterproof and flame-resistant, the panels are produced with the end of every sheet tapered to fit into each overlapping sheet. *Chemold Co., 2000 Colorado Ave., Santa Monica, Calif.*

ATOMIC REACTORS FOR SALE

Atomic reactors are graduating from the custom-built class. Babcock & Wilcox Co.'s atomic energy division is producing two relatively low-cost models which it will sell to universities and research organizations. These reactors are too small to supply power for electricity on a commercial basis, but they can be used for experimenting with peaceful means of harnessing atomic energy. *Babcock & Wilcox Co., 161 E. 42nd St., New York, N. Y.*

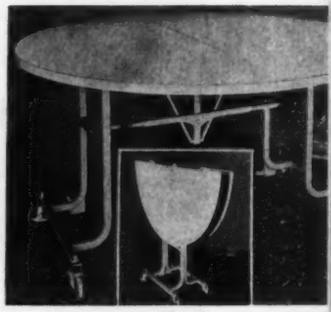
OFFICE EQUIPMENT — others on pages 232 and 233

DRAWING TABLE

• A smooth adjustable drawing table is available in a choice of 1 1/8-in. basswood or laminated maple top. The adjustable top is joined to the legs by lag screws inserted through adjustable top rails and secured to the underside of the top. The foot rest is welded to the legs to provide additional rigidity. *The Industrial Bench & Equipment Manufacturing Co., Inc., 89 South St., New Britain, Conn.*

FURNITURE — others on page 238

FOLD-AWAY BANQUET TABLE



• The new *Erickson Fold-A-Way round banquet table*, on rubber wheels, has a positive locking action in both folded and unfolded positions. Lock casters keep it from rolling. It comes in three sizes: 60-, 66- and 72-in. diameters, covered with plastic and mounted on 29-in.-high legs of 1 1/8-in. steel tubing. *Haldeman-Langford Manufacturing Co., St. Paul, Minn.*

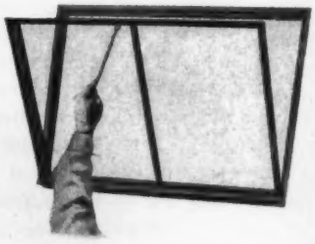
SINKS — others on page 250

SIT-DOWN SINK

• The *Sit-Down Sink* features a shallow, sit-down bowl, with plenty of knee room underneath, to which a housewife can pull up a stool or posture chair for preparation of foods. A conventional counter arrangement, available in 72-, 84- and 96-in. lengths, has one deep bowl and one sit-down bowl. A peninsula model, 40 1/2 by 54 1/2 in., has two deep bowls for normal rinsing and dishwashing and one shallow bowl for sit-down. A rotating swivel faucet serves all three bowls. *Elkay Mfg. Co., 1874 S. 54th Ave., Chicago 50, Ill.*

WINDOWS AND DOORS — others on pages 238, 242, 246

BASEMENT WINDOW



• The new *Crittall basement window* opens with a slight pull and latches and locks with an equally easy push. No locking handles or other latching devices are used. The hingeless opening panel lifts out from the inside without tools for easy cleaning and so that bulky materials can be passed through the full size of the window opening. *Crittall, Inc., Waukesha, Wisc.*

For this $8,000,000 medical school and hospital, Mr. N. W. Overstreet, one of the architects, writes, "No other systems were considered, because we know that reinforced concrete is less expensive and better." Mr. H. N. Howe, the structural engineer, adds, "Numerous studies over a period of years have invariably shown that a reinforced concrete frame is more economical for fireproof buildings of light occupancy."

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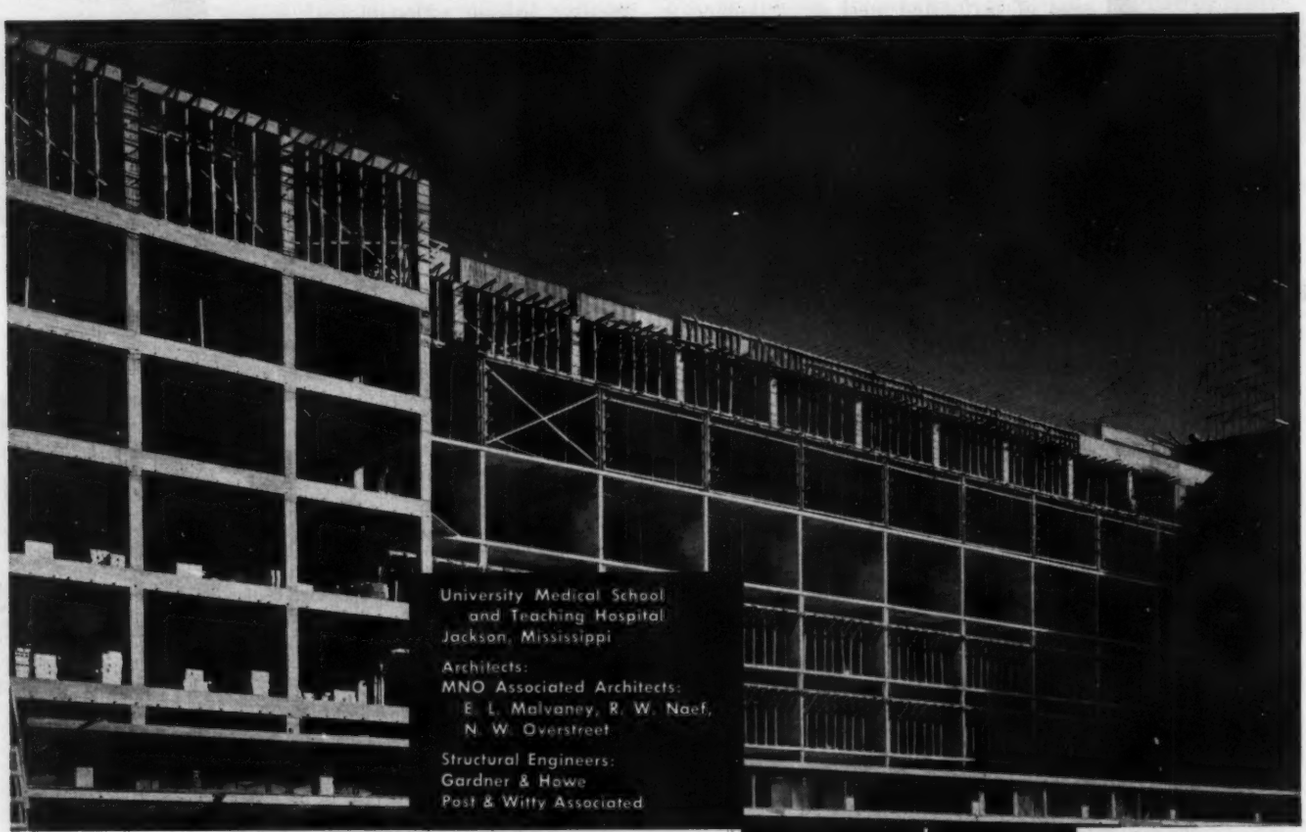
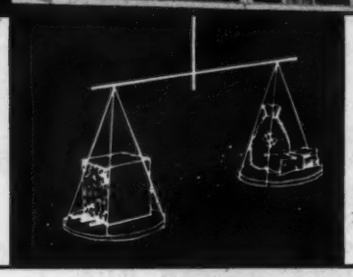


University Medical School
and Teaching Hospital
Jackson, Mississippi

Architects:
MNO Associated Architects:
E. L. Malvaney, R. W. Naef,
N. W. Overstreet

Structural Engineers:
Gardner & Howe
Post & Witty Associated



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Introduction

This is the start of a series on thermal insulation, based on recent research results, which will cover: theory of heat transmission, briefly; a method for calculating insulation economies; recommendations on special problems; and tables of heat transmission factors. Advances in this field have been primarily in insulating materials themselves—kinds and numbers; new heat transmission data on building sections insulated with reflective materials; methods for calculating insulation requirements for concrete slabs on grade; and a greater recognition of the problems of condensation. A feature of these Time-Savers will be a comprehensive, easy-to-use set of tables on *U* factors.

Thermal insulating efficiency is a factor in: (1) temperature of inside surfaces which affect comfort of occupants and aid or deter condensation, and (2) heat transmission through building sections which determines energy requirements for both heating and cooling. Economies in fuel consumption can be calculated with reasonable accuracy (see Sheet 2) and balanced against initial cost of insulation and cost of heating-cooling system.

Coefficient of Heat Transmission, *U*; Definition

Calculations of heating or cooling loads are usually based on rate of heat flow through building sections, along with ventilation and moisture requirements. The symbol *U* designates the over-all coefficient of heat transmission for any section of building shell. The units for *U* are Btu per sq ft of section per hr per deg F temperature difference between inside air and outside air. It is practically always less than one.

Mechanism of Heat Transfer

The heat flow through any structural section is retarded by several elements associated with or incorporated in the section:

1. The outside surface traps a thin film of air which resists heat flow. This film varies with wind velocity and with physical character of the surface.
2. Each layer of material contributes resistance to heat flow. Usually heavy compact materials have less resistance than light ones.
3. Each measurable air space adds to the over-all resistance. Resistances vary with dimensions of the space and character of surfaces facing the space.
4. Inside surface of the section also traps an air film. This film is usually thicker than the outside film due to much lower air velocity.

The sum of these resistances gives the over-all resistance, whose reciprocal is *U*.

Thermal Resistance of Air Films. Heat absorbed by, or lost from, a building section is a combination of heat transfer by radiation, convection and conduction. Radiation is controlled by character of the surfaces (emissivity) and temperature difference between the surface and opposed objects, buildings, etc. Convection and conduction are functions of the roughness of the surface, air movement and temperature difference between air and surface.

Thermal Resistance of Materials. When a material is homogeneous, such as insulating board, its ability to transfer heat, thermal conductivity k, is measured as Btu per hr, per sq ft, per degree F, per in. of thickness. The reciprocal $1/k$ is the resistivity. The resistance of any thickness of material is its resistivity per inch times the total thickness. In calculating *U* values, only the resistances are used.

Non-homogeneous materials, such as hollow building blocks or composite plaster and lath, are laboratory-tested for their actual thicknesses instead of per inch of thickness. The resistance is calculated for the entire thickness. The reciprocal of resistance is conductance. Both are included in Table 2, which will appear on Sheet 3.

Thermal Resistance of Air Spaces. Heat flow across an air space involves the resistance of the air in the space and the materials bounding the space.

Heat passes across the space by conduction from one face to air, then by convection through the space, and finally by conduction to the opposite face. This portion of heat flow is controlled by the dimensions and shape of the air space, the texture of the materials facing the space, the mean temperature of the space, and direction of heat flow.

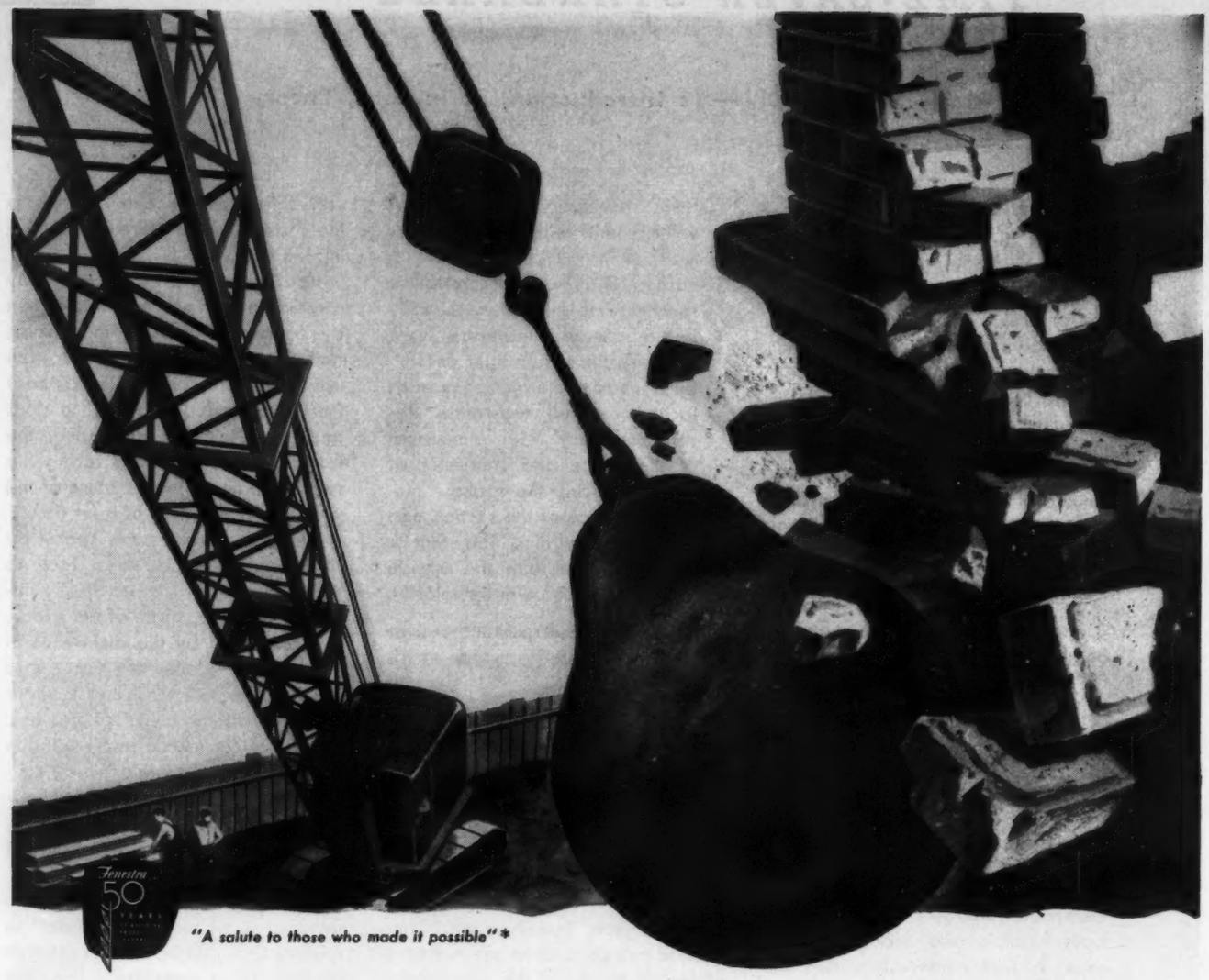
Heat also crosses the space by radiation from the warm face to the colder face. It is practically unaffected by the depth of the space. It is controlled by the difference in temperature of the two faces and by their relative ability to emit or absorb radiant heat (emissivity). Factors of convection and radiation vary independently in ordinary construction. Emissivities of ordinary building materials are usually high, 0.80 or more, whereas those of metals are low, around 0.05.

When heat flow is upward, the proportion of convective heat to radiant heat is high, and the relative importance of emissivity is low. The reverse is true for heat flow downward. Low emissivity factors are most useful for the latter case, for resistance to solar heat in roofs and ceilings and for reduction of heat losses in floors over unheated areas.

Calculation of *U* Values

To calculate the *U* value for any wall, floor, ceiling or roof section, proceed as follows:

1. Select the resistance R or the resistivity $1/k$ of each material, air space or exposed surface of the given section from Table 2 on Sheet 3.
2. Where resistivity (per in.) is used, multiply by the actual thickness of the material.
3. Total the sum of the various resistances and divide it into 1.00 to get the reciprocal.
4. The result is the coefficient of heat transmission *U* in Btu per sq ft per hr per degree F.



WILL YOUR BUILDING DIE OF ELECTRICAL STARVATION?

Will it be old *electrically* before it's completed?

Or will it be productive beyond its normal span because of its electrical flexibility? It *can be*—with Fenestra-Nepco Electrifloor—the structural floor system in which the sheet steel cells are used as electrical raceways.

With this advanced new floor system, new outlets can be installed *any time* . . . in *any* or *every* square foot of floor space. Your floor will welcome every future electrical demand.

And this new floor system saves building time, labor, materials and money!

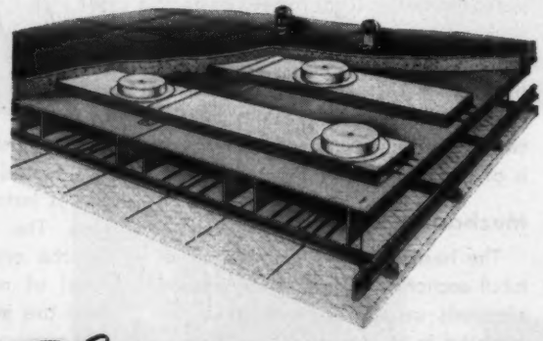
On one job, 1,000 tons of structural steel were saved because of Electrifloor's combination of great strength with light weight. Foundation costs were also cut.

On a rush job, it saved 6 months' building time—as many as 7 floors went in at once. As soon as a few of the cellular floor panels were laid and interlocked, they served as material storage space and working platform.

Fenestra-Nepco Electrifloor was developed jointly by Fenestra* (Detroit Steel Products Company) and Nepco (National Electric Products Corporation)—two great names in the construction field.

If *you* want to protect *your* building investment write to Detroit Steel Products Co., Dept. AR-9, 2252 E. Grand Blvd., Detroit 11, Mich.

*Trademark



* Your need for electrical flexibility for the present and future of your building encouraged Nepco and Fenestra to develop Electrifloor . . . a great advancement in building products.

Fenestra Nepco | ELECTRIFLOOR

THERMAL INSULATION—2: Estimation of Economies

By Laurence Shuman, Consulting Engineer

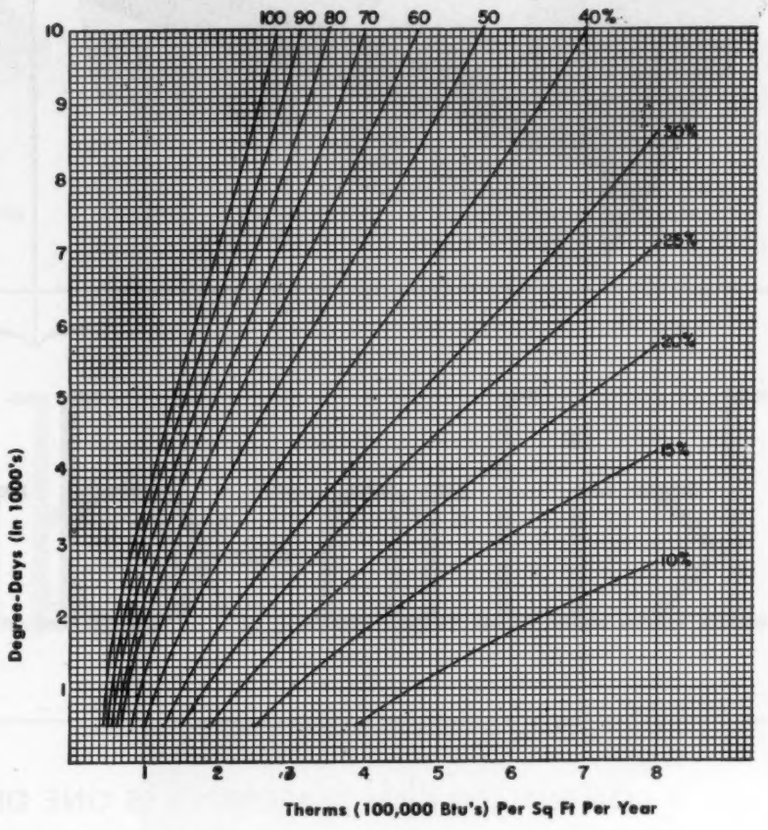
Intelligent selection can be made from the wide variety of methods for adding thermal protection when the cost factors are known. Economy of operation may be sufficient to offset additional charges for better insulation. Use of insulation beyond that required for structural and comfort conditions should be based on economic analysis, and such insulation methods should be capable of repaying their costs.

A method for evaluating operating economies of insulation treatments is given here. Fuel costs and savings are expressed in terms of fuel units per unit area of building section involved. Where several possible construction assemblies are being considered, it is possible to compare the annual expense of each in terms of fuel requirements through use of their *U* values.

Fuel Requirements Chart

Cost of any building section in terms of fuel units per year can be obtained from curves on the Fuel Requirements Chart and Tables 1 and 2. The curves show the approximate number of therms (1 therm = 100,000 Btu) required by each square foot of section for various heating plant efficiencies and for the appropriate number of degree-days when the *U* factor = 1.00. Multiplying this number of fuel units by the actual *U* values of the sections being studied gives the approximate annual fuel requirement.

The chart curves are derived from formulas published in the *ASHVE Guide*, with some modifications to indicate the additional fuel requirements in those areas where the heating load is light. Calculations based on the chart are approximately correct to 5 per cent, and take into consideration night cutback to 55 F. Where no cutback is expected, the values should be increased by about 7 per cent, and where longer cutbacks, weekend shutdowns, etc., are contemplated, individual judgment will have to be exercised for adjustments.



Use of Chart

The chart is used as follows:

1. Determine the number of degree-days for the locality of construction from the U. S. Weather Bureau or local sources.
2. Select the appropriate heating efficiency curve. The efficiency will vary with construction quality and design, heating plant design and quality, accuracy of installation, operating control methods and apparatus, and tenant habits. Suggested efficiencies are given in Table 1 on Sheet 3.
3. Locate degree-days on the vertical scale and proceed horizontally to the appropriate efficiency curve. From this point drop vertically to the horizontal fuel scale, which is in annual number of therms where *U* = 1.00.
4. Multiply this number by the number of square feet of building section and by the *U* factor.
5. Convert the number of therms to the particular type of fuel to be used by Table 2 on Sheet 3.

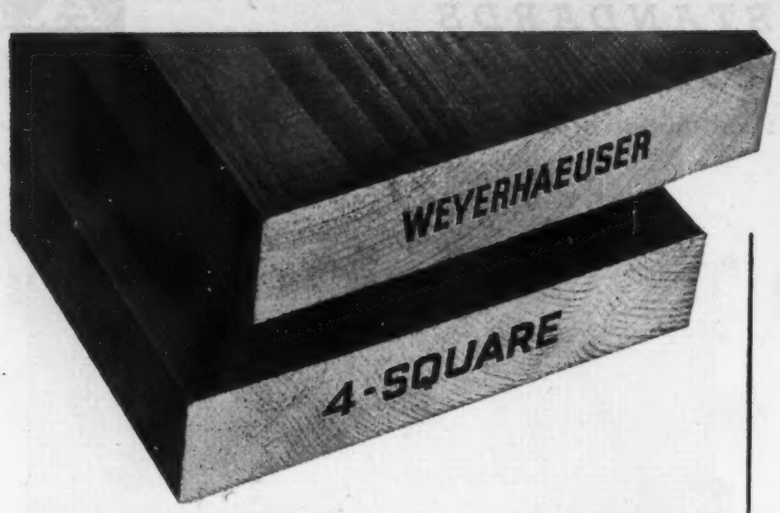
Cost Analysis

The annual fuel consumption for each building section allows comparisons of economy to be done as follows:

1. Set up the initial cost of each of the building sections being considered as a yearly charge covering interest and amortization.
2. Add the excess fuel cost for the sections having greater fuel consumption than the one having the least.
3. Totals will show the approximate differences in cost for each type.

For a more refined analysis, such costs as maintenance, repair, etc., should be considered. Also the heating plant may be reduced in size if heating load is cut sufficiently by insulation.

(To be continued in a later issue)



this brand name on lumber also means

kiln-dried

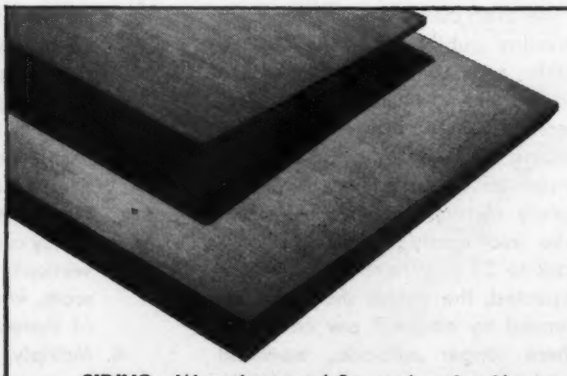
CONTROLLED KILN SEASONING IS ONE OF MANY REASONS WHY *WEYERHAEUSER 4-SQUARE* MEANS UNIFORMLY HIGH QUALITY LUMBER

The use of well-known, trade-marked materials is sound building practice—and always wins appreciative approval from home and building owners.

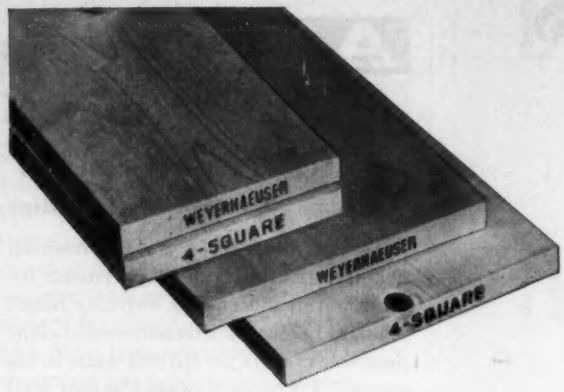
Builders and owners see in the Weyerhaeuser 4-Square brand name a familiar mark of quality. This confidence is the result of many years of advertising and, more important, the fine record of performance of every product bearing the Weyerhaeuser 4-Square trade mark.

One of the reasons for the widespread acceptance of Weyerhaeuser 4-Square is the fact that every piece of lumber bearing this brand has been scientifically kiln-dried. Controlled seasoning means that this lumber holds its size and shape remarkably well... has maximum strength and stiffness . . . takes paint and other finishes. These characteristics, plus the benefits of precision sawing and surfacing, proper grading, careful handling and shipping, mean that Weyerhaeuser 4-Square Lumber is consistently high in quality.

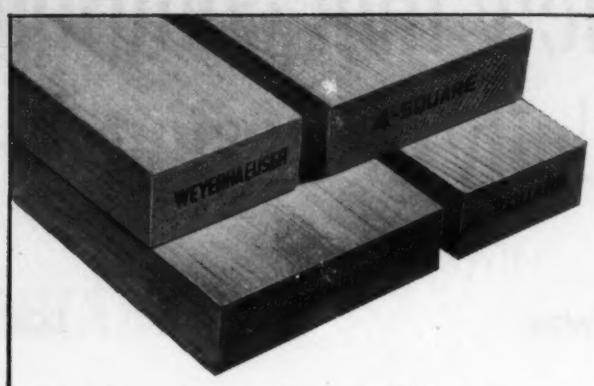
See this lumber, in a wide range of species, grades and sizes, at the office of your local Weyerhaeuser 4-Square Lumber Dealer.



SIDING—Weyerhaeuser 4-Square bevel and bungalow siding takes and holds paint exceptionally well because it has been scientifically kiln-dried.

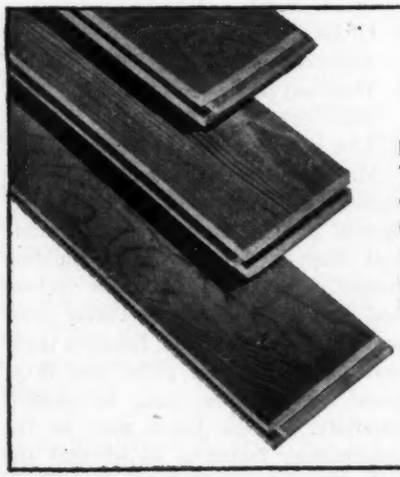


BOARDS—Every board bearing this brand name has been seasoned prior to manufacture.

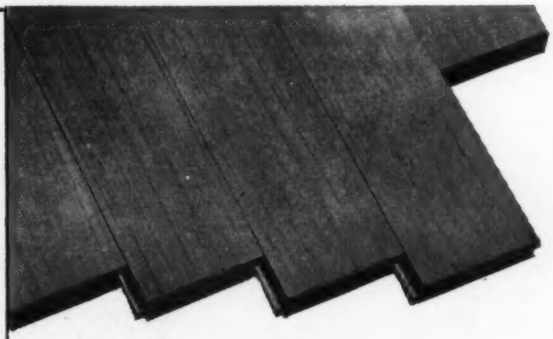


DIMENSION—Scientifically kiln-dried lumber contributes to sound, durable construction.

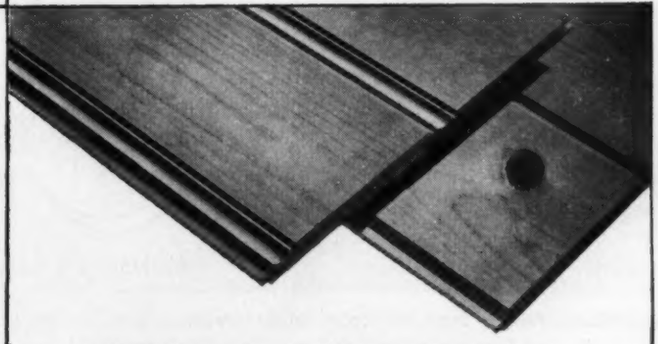
lumber



END MATCHED—This popular item eliminates waste and reduces building time—proper seasoning gives it maximum strength.



FLOORING—Controlled kiln-drying means a firm, smooth surface for superior appearance and wearability.



PANELING—Seasoned Weyerhaeuser 4-Square paneling presents a dry, smooth surface for a variety of finishes.

Weyerhaeuser Sales Company

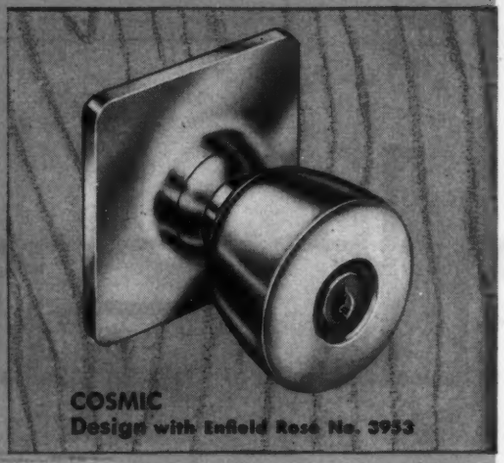
ST. PAUL 1, MINNESOTA

Variety that contributes to Unity of Design

RUSSWIN "Stilemaker" LOCKSETS

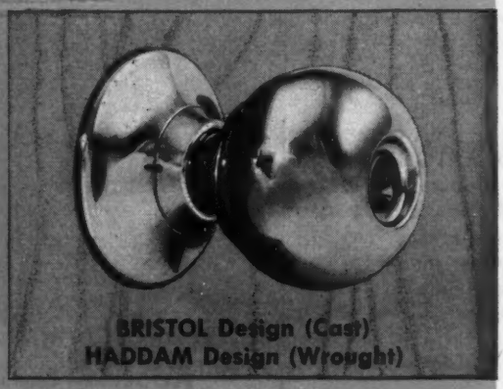
Heavy Duty Cylindrical Type Locks and Latches in Cast or Wrought Brass, Bronze and Aluminum

BRISTOL
Design with Enfield Rose No. 3958

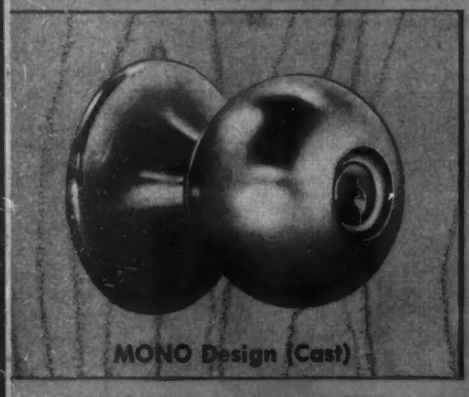


COSMIC
Design with Enfield Rosé No. 3953

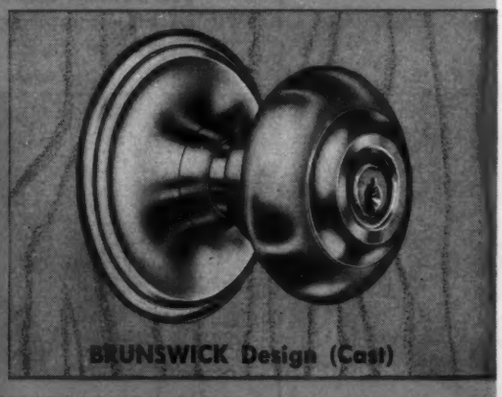
FLARE Design (Cast)
COSMIC Design (Wrought)



BRISTOL Design (Cast)
HADDAM Design (Wrought)



MONO Design (Cast)



BRUNSWICK Design (Cast)

STOCK FINISHES: Polished Brass, Dull Bronze, Polished Chromium, Dull Chromium, and Dull Aluminum.

SINCE 1839
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RUSSELL & ERWIN DIVISION, The American Hardware Corporation, New Britain, Conn.

AE ROUNDUP

(*Continued from page 211*)

RESEARCH | ***Porcelain Enamel Curtain Wall Studies***

As a result of three years of research and investigation of the requirements for porcelain enamel curtain walls, Architect William Lescaze has recommended eight desirable criteria for curtain walls in his report, "Porcelain Enamel Curtain Wall Research for the Porcelain Enamel Institute, Report No. 3 — Step II."

Mr. Lescaze says that curtain walls should be:

1. Light in weight, not only to lower transportation costs and facilitate erection but also to reduce the basic tonnage of the frame of the building.
2. Thinner than masonry, so that the maximum usable rentable space is gained around the perimeter of the building.
3. Made in prefabricated units, as large as possible.
4. Of adequate strength, durability and weather resistance.
5. Cf adequate fire rating (2 hr is required for multi-story buildings in urban areas).
6. Of greater insulating value than conventional walls.
7. Designed for inside placing, so that scaffolding will not be necessary.
8. Low in cost.

Mr. Lescaze recommends that the secondary framework to which the panel system is attached be simple, flexible and adaptable to all types of building frames. He suggests also that vertical and horizontal jointing between panel and structural elements, between panel and panel, between panel and door, panel and window, etc., be studied carefully, for the joints may be the determining factor as to whether the system stands or fails, on the basis of leakage, expansion, contraction and icing.

In the report Mr. Lescaze goes on to discuss criteria for core materials, insulation, sealing compounds and adhesives.

NEWS | ***Companies and People***

• *Pittsburgh Corning Corporation*, manufacturer of PC Glass Blocks and Foamglas, the cellular glass insulation, has moved its New York District Office from 30 Rockefeller Plaza to *579 Fifth Ave., New York 17, N. Y.*

AE ROUNDUP

• *The Miller Company, Meriden, Conn.*, announces the creation of a Custom Dept. for the manufacture of lighting fixtures to customers' design and specifications as developed by architects and consulting engineers. A sketchbook in standard file size showing various items which have been produced by the new department has been made available.

• *Ohio Lime Company, Woodville, Ohio*, is the new name of The Ohio Hydrate & Supply Company.

• *Habitat Associates* has moved from Madison Ave. to a new shop at *235 East 58th St., New York, N. Y.* A new collection of furniture designs was displayed at the opening of the shop.

• *Carboline Co., Division of Mullins Non-Ferrous Castings Co., 331 Thornton Ave., St. Louis 19, Mo.*, has announced the addition of an Adhesives Division, which will specialize in research and development of adhesive products formulated for specific uses.

• *The American Lumber & Treating Co.* has been absorbed by *Koppers Co., Inc.*, and all of its former operations will be carried on by Koppers' *Wood Preserving Division, Pittsburgh 19, Pa.*

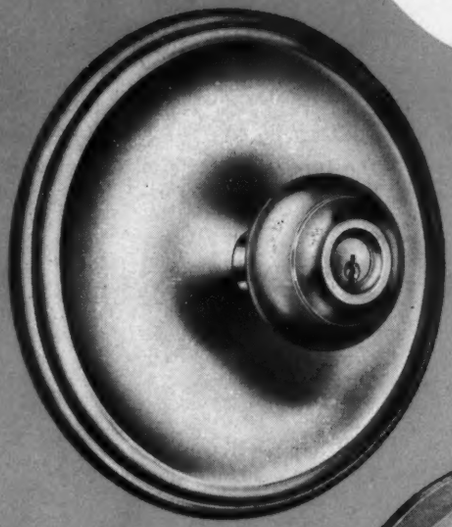
• Howard Foundry Co. has announced the formation of a new subsidiary, *Howard Electric Co., 1700 No. Kostner Ave., Chicago 39, Ill.*, which will manufacture a new type of electrical underfloor system for office and industrial buildings. Full production started September 1.

• Elmer R. Kaiser, Columbus, Ohio, has been appointed as the new Director of Research for the *American Society of Heating and Ventilating Engineers, 62 Worth St., New York, N. Y.*

NEWS | The University of Texas will establish next fall an architectural engineering library specializing in building construction publications, difficult to obtain through routine library operations. Printed material will be collected on such subjects as structural design, building contracting, air conditioning, foundation methods, illumination, acoustics, climatology, building codes and industrial hygiene.

Décor that helps to achieve Distinction

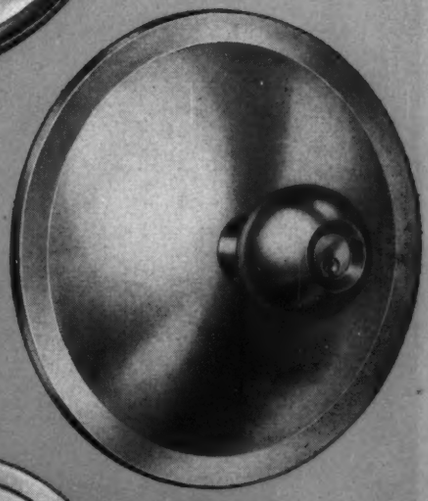
RUSSWIN "Stilemaker" Ornamental Escutcheons



Supplementing basic Stilemaker designs, are these attractive escutcheons . . .

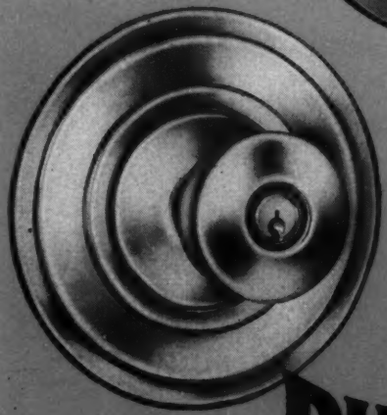
Brunswick design

Escutcheons in cast brass, or bronze . . . 5" and 8" diameters



Mono design

Escutcheons in cast brass, bronze or aluminum . . . 5" and 8" diameters



Cosmic design

Escutcheons in wrought brass, bronze or aluminum, 5½" diameter

STOCK FINISHES: Polished Brass, Dull Bronze, Polished Chromium, Dull Chromium, and Dull Aluminum

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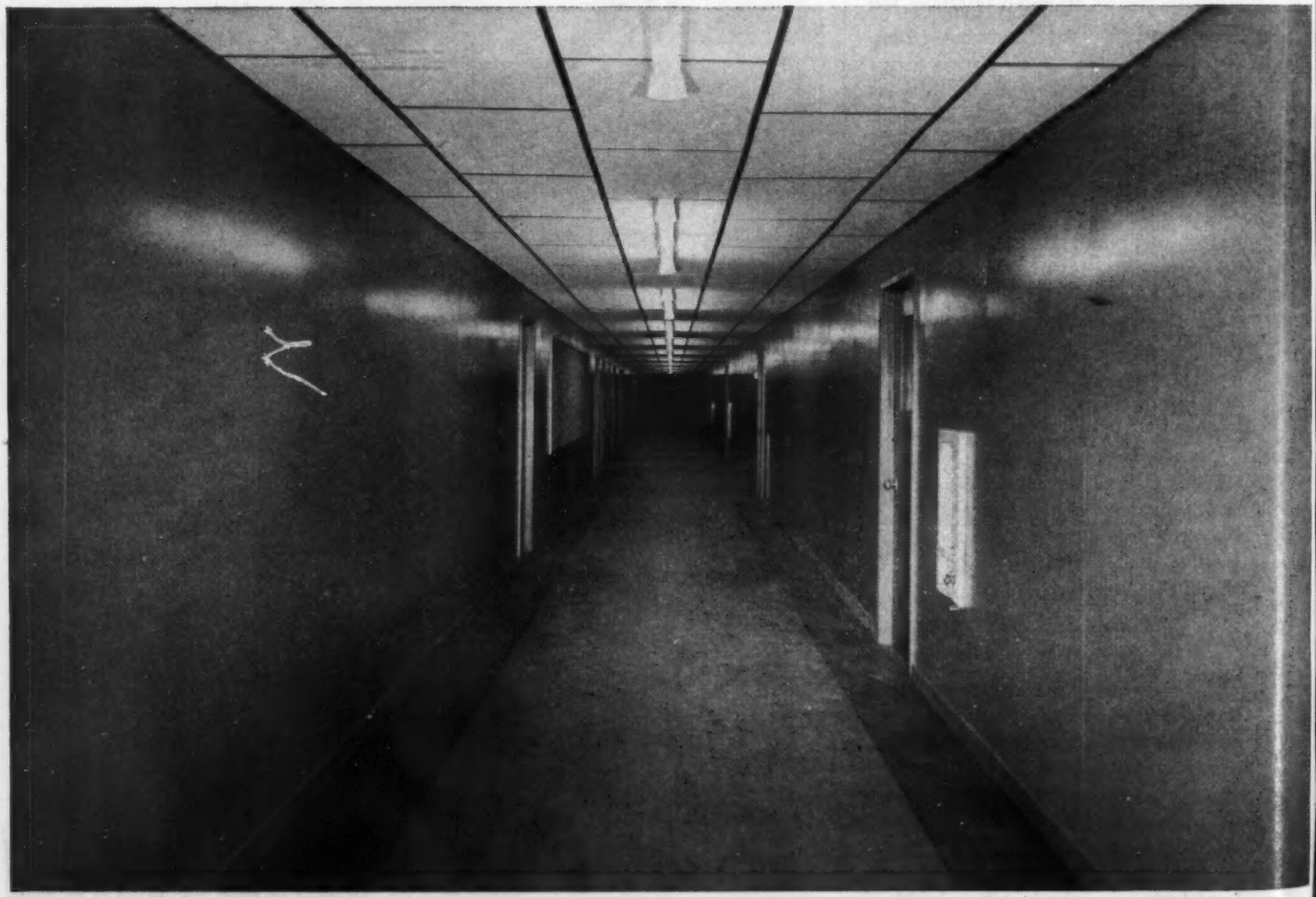
RUSSELL & ERWIN DIVISION, The American Hardware Corporation, New Britain, Conn.

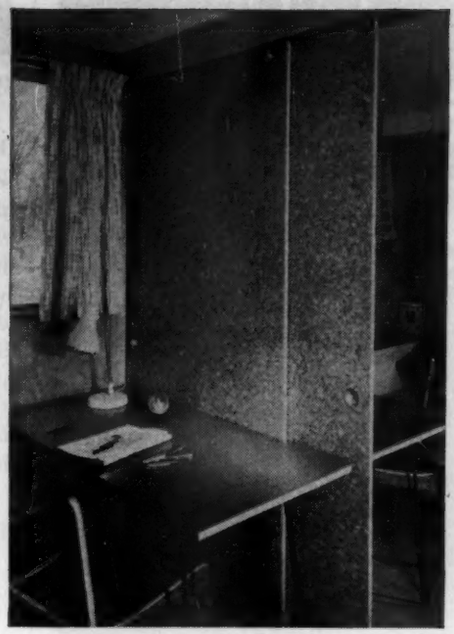
EXTRA LONG LENGTHS (available up to 48″ x 192″) of California redwood and pine Novoply were used to achieve this dramatic wall treatment.

New wood-plastic Novoply gives free



SMUDGY LITTLE HANDS will never hurt this Novoply lined school corridor.

LOOKS LIKE A "MILLION" but this Novoply showroom wall costs so little.



WARP-FREE NOVOPLY sliding door unit room divider in moderate price house.

NOVOPLY IS PERFECT for partitions—good two sides—no patches or plugs.

rein to your wall ideas

Novoply paneling opens the way to an entirely new wall treatment concept. It's bold, imaginative, practical, yet it's priced for even a modest budget.

When funds are limited, yet you still want to avoid the dull, the done-to-death ideas, then it's time to specify Novoply. You'll like the fresh mosaic textured look of Novoply in either pine or California redwood faces.

Novoply has its practical side, too! It's the most dimensionally stable wood-plastic panel made—*virtually warp-free!* Novoply is made by a special bonding process which results in an exceptionally hard, *ultraflat* surface—*good both sides!* Novoply scorns wear, takes almost any finish.

With Novoply, maintenance is never a problem, because once the walls are up and finished an occasional waxing or a wipe of a sponge is all that's needed to keep them looking fresh and new.

For further information call or visit any of the 73 United States Plywood or U.S.-Mengel Plywoods distributing units in principal cities.

SPECIFICATIONS

THICKNESS: ¾"; *Sizes:* 24" x 72", 24" x 96", 30" x 48", 30" x 60", 30" x 72", 36" x 72", 48" x 48", 48" x 72", 48" x 96"; also cut to size for volume users from panels 6′ x 12′ and 4′ x 16′. Available in 3/8" thickness, sizes 48" x 96" and 48" x 192". Can be made 5/16" and 11/16" to order.

IMPORTANT NOTE: Only slight extra cost for long-length Novoply panels up to 16′. Long lengths reduce number of joints, reducing installation costs.

BEAUTIFUL WELDWOOD FIRE DOORS* ARE UNCONDITIONALLY GUARANTEED FOR THE LIFE OF THE INSTALLATION

Weldwood Fire Doors have incombustible Weldrok® core. Bear Underwriters' label for class B and C openings. Available in wide choice of fine hardwood faces, in standard sizes and special sizes to order.

*Pat. No. 2,593,050

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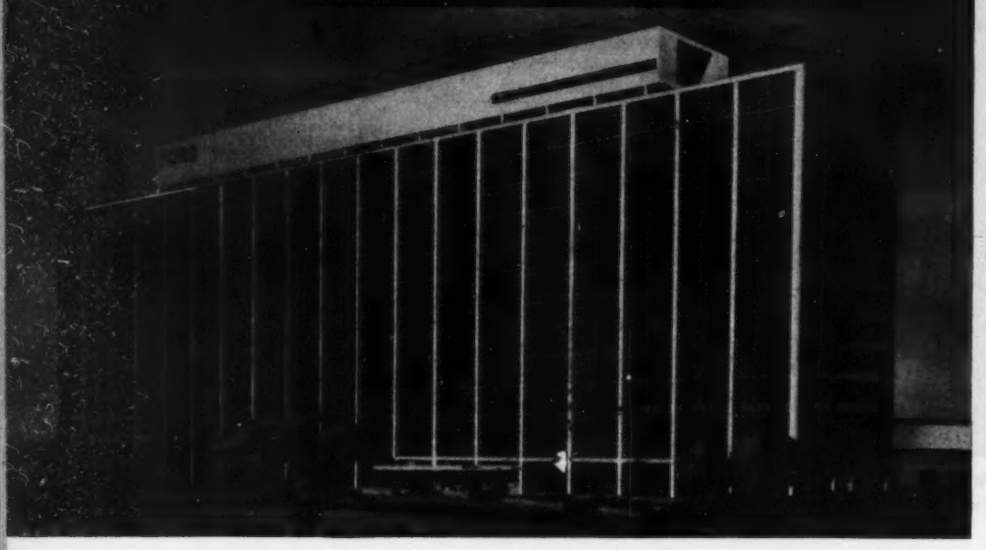
NAME.....

ADDRESS.....

CITY.....STATE.....

Q-FLOOR helps make Ford's new Dearborn office building as modern as its cars



Ford Motor Company.....Dearborn, Michigan
Skidmore, Owings and Merrill.....Architects
Bryant & Detwiler Company....General Contractors
Weiskopf & Pickworth.....Structural Engineers

Shown above is the Ford Motor Company's magnificent new administration building soon to occupy a 90-acre site in Dearborn, Michigan. When it is completed, it will provide nearly 950,000 square feet of floor space, approximately 500,000 square feet of which will be Q-Floor and on which 3,000 employees will work in the comfort of the latest in modern lighting and air conditioning.

Architects Skidmore, Owings and Merrill carefully designed the building to prevent obsolescence due to changing conditions in the years to come. Interior partitions will be movable to provide maximum flexibility in floor arrangements, and Robertson Q-Floor construction will be used to permit complete freedom of power and telephone outlet changes and additions at minimum cost. Only with this weight-saving, cellular steel structural floor can every exposed 6" square area be the potential location of a convenience outlet.

Robertson Q-Floor construction also saves time and money. Its weight-saving factor means lower cost of foundation and structural steel. It immediately becomes a safe storage and working platform for the benefit of all trades. And because no combustible forms and falsework are required for the concrete fill, there has never been a construction fire on a Q-Floor job.

With all these remarkable features, it is easy to see why Q-Floor will help make and keep this fine new building as modern as the Ford of tomorrow.

Use the coupon on the opposite page to write for literature.

Robertson

Q-Floor

a product of **H. H. Robertson Company**

2404 Farmers Bank Building • Pittsburgh 22, Pennsylvania
In England—Robertson Thain Limited, Ellesmere Port, Cheshire
In Canada—Robertson-Irwin Limited, Hamilton, Ontario

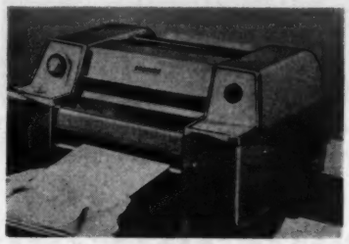
World-Wide Building Service

AE PRODUCTS

(Office Equipment continued from page 221)

WHITEPRINT MACHINE

• The *Ozalid Model 800* is a new whiteprint machine which will reproduce translucent engineering drawings and business forms up to 42 in. wide at speeds up to 30 fpm. Continuous in operation, the machine will send prints directly from feedboard through exposure and development without having to be re-handled. Prints are stacked and collated at a front adjustable receiving tray. *Ozalid, Johnson City, N. Y.*



• An 11-in.-wide *tabletop direct reproduction machine*, with an operating speed of 12 ft per min, can make copies of small-size drawings, specification lists, floor plans, etc. The machine makes positive copies directly from the original of anything drawn, written, printed or typed on ordinary translucent paper. *Charles Bruning Co., Inc., 4700 Montrose Ave., Chicago 41, Ill.*

LINE SPACER

• The *Linemaster* makes possible accurately spaced lines for layouts, architectural and engineering drawing, lettering and cross-hatching. A small, heavy plastic disk 2¼ in. in diameter, the Linemaster has 17 slots in which a pencil or scriber point can produce parallel lines 1/64 in. and 1/32 to ½ in. from a base line in steps of 1/32 in. *DRI-flo, 642 E. 10-Mile Rd., Hazel Park, Mich.*

PENCILS

• The *Koh-I-Noor Polycolor pencil* is now available in a flat sketching form, ¼ in. broadside and ⅛ in. edgewise. They are available in twelve colors.

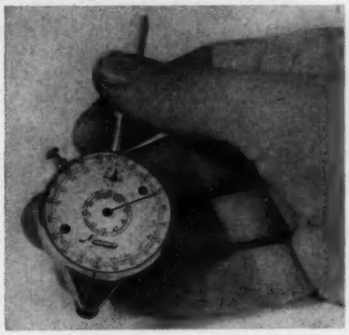
A pushbutton *Adapto-Clutch* holder, for use with leads of all diameters in all degrees, is said to be slip-proof against vertical pressure and turn-proof in all lead sharpeners and machines. *Koh-I-Noor Pencil Co., Inc., Bloomsbury, N. J.*

AE PRODUCTS

CONVERSION SLIDE RULE

• Conversions involving energy, linear, liquid and other measures can be made without computation and with a single setting on a new *slide rule*. A complete trig scale arrangement consisting of A, K, DF-CF, T, S, CI, C-D and L scales appears on one side of the rule, and 64 linear, liquid, energy and miscellaneous factors on the reverse. *Pickett & Eckel, Inc., 1109 S. Fremont St., Alhambra, Calif.*

BLUEPRINT DISTANCE RECORDER



• The *Minerva Curvimeter* records straight or curved distances up to 2400 ft on blueprints scaled ⅛ in. to 1 ft, up to 1200 ft on prints scaled ¼ in. to 1 ft, and up to 600 ft on prints scaled ½ in. to 1 ft. A small hand, centered in a dial within a dial, which moves one division with each revolution of the long hand, eliminates all possiblity of error. *M. Ducommun Co., 580 Fifth Ave., New York 36, N. Y.*

GRID-LINED TRACING PAPER

• A new aid to draftsmen is a cross-sectional grid printed in non-reproducible ink on various grades of tracing papers and tracing cloth in rolls 30 in. wide. *John R. Cassell Co., Inc., 110 West 42nd St., New York 36, N. Y.*

AIR BRUSH ERASER

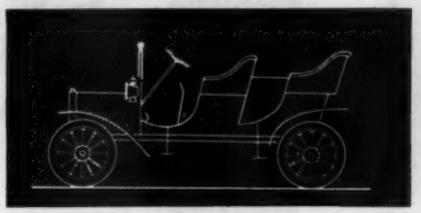
• The *AE-3 air eraser* enables the artist to erase anything from a fine line to a wide area. It will erase ink, paint or color without marring the surface, smudging or streaking. The manufacturer also suggests its use for decorative work on glass, ceramics or metal and for cleaning lithographer's plates. *Paasche Airbrush Co., 1909 Diversey Pkwy., Chicago 14, Ill.*

(Products continued on page 238)

Floors, like Fords, have seen change over the years

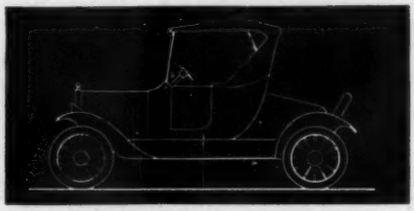
For over a half century the automobile has been a chief topic of conversation, and the improvements made over the years have been critically analyzed by every prospective purchaser.

As every architect and engineer well knows, the floor construction of office buildings has undergone a similar period of development, moving from cumbersome tile arch construction to the modern electrically available cellular steel floor. The basic chronology of floors and Fords up through Q-Floor and the Y-Block engine is shown below.



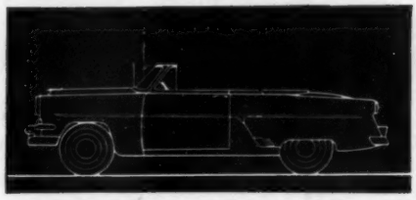
1904 The 4-cylinder, 20-horsepower forerunner of the fabulous Model T was a sensation this year. It featured two speeds forward, gas headlamps, and a handy crank for starting.

1904 This year, electricity was just finding its way into commercial buildings and was used only for lighting. Floor construction, at best, was a dead monolithic slab.

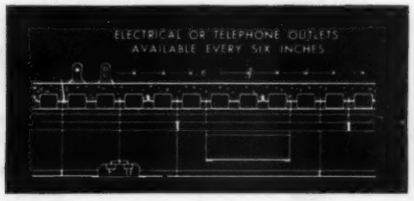


1924 Ford was now producing as many as 2,000,000 cars a year, all painted black. Wide tolerances in bearings, gears, and other interchangeable parts made every Model T owner his own repairman.

1924 The increasing use of electricity found many office buildings sadly lacking in convenience outlets for the new electrical equipment. Early attempts at "in-the-floor wiring" were adequate for that day.



1954 Today's car is designed for comfort and convenience. There is little left to do but steer. Mechanically, it is made to cope with every requirement of its owner.



1954 The finest of today's new office buildings are built with modern Q-Floor because it offers the greatest electrical and structural advantages of any floor system known.

Robertson

Q-Floor

a product of **H. H. Robertson Company**

2404 Farmers Bank Building • Pittsburgh 22, Pennsylvania

World Wide Building Service

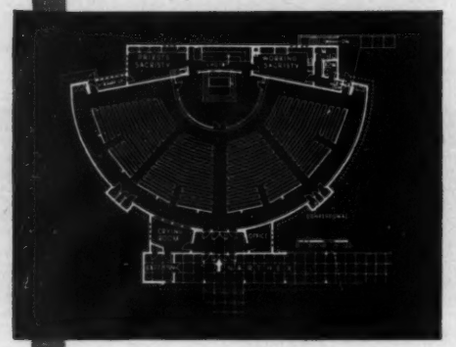
Please send a free copy of your "Q-Floor" catalog.

Name_____

Address_____

PAUL THIRY'S *daring, functional design called for modern*

SARCOTHERM
HEATING CONTROLS



Architect: **Paul Thiry**
Engineers: **The Austin Company**
Heating Contractors: **L. G. Massart Plumbing & Heating Co.**

CHURCH OF CHRIST THE KING, SEATTLE, WASH. Semi-circular arrangement seats 550 persons with no pew more than 50 feet from altar. Other features: 60-foot carillon tower; covered portico, stained glass clerestory.

TAKE ADVANTAGE OF SARCOTHERM'S UNUSUAL ENGINEERING SERVICE

In A Class By Itself—Sarcotherm's engineering service begins with the inception of the job, *carries through* every step of the way.

Complete Installation Drawings And Wiring Diagrams—not just general drawings but complete, tailor-made drawings and diagrams for each individual job.

On The Job Help—your contractor gets full cooperation and technical assistance backed by many years of specialized experience.

ARCHITECT PAUL THIRY'S inspiring design for Church of Christ The King is completely functional from its 60-foot carillon tower down to its weather modulated controls.

Radiant heating and the large attendance expected necessitated an extremely accurate, sensitive control system. To do the job, design engineers specified a Sarcotherm Weather Compensated Control System which insures comfort conditions inside regardless of outside temperatures.

Sarcotherm advantages of simple, low-cost, accurate control plus unique engineering service can help you design and install the most efficient system possible. A Sarcotherm engineer will be happy to advise you on your next project.

For full information on Sarcotherm controls, write for complete catalog.

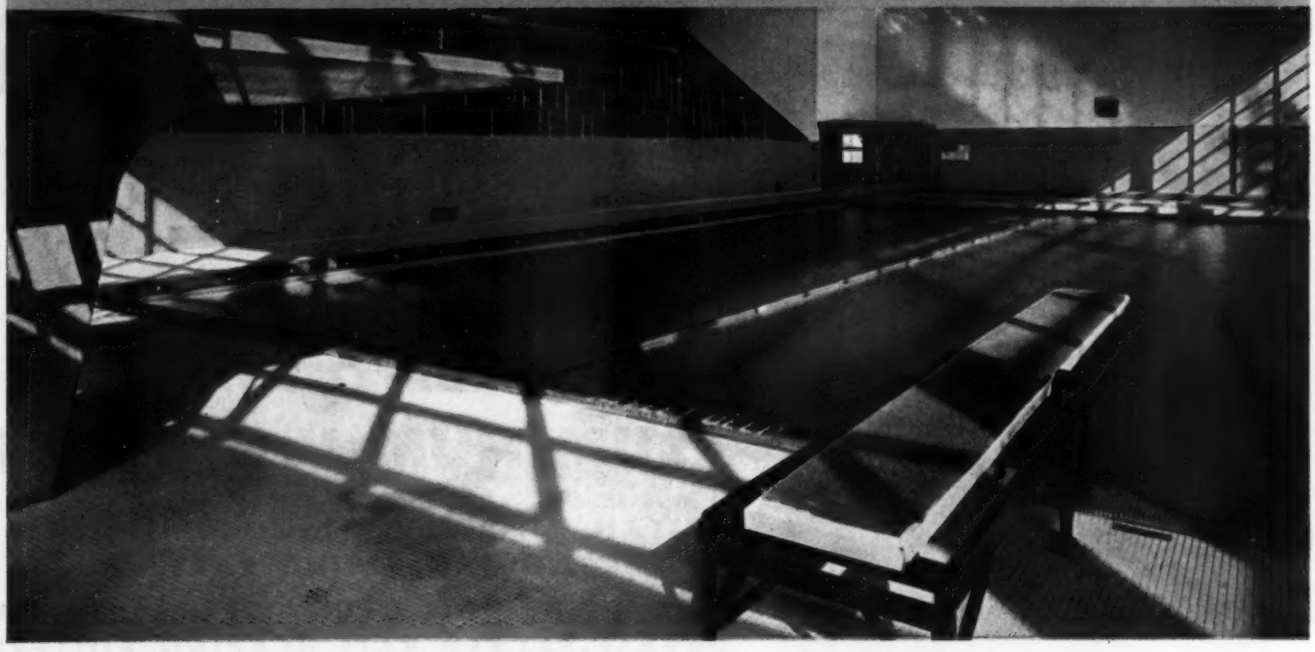
SARCOTHERM CONTROLS, Inc.
Empire State Bldg., New York 1, N. Y.
An Affiliate of SARCO COMPANY, INC.

Weather Modulated Controls for **HOT WATER, RADIANT AND STEAM** *Heating Systems*

Mosaic's new 9" x 6" x ½" Glazed Wall Tile on corridor wainscot, Foothills School, Boulder, Colo. Robert Ditzen, Architect. Reeves-Ryan Tile Co., Tile Contractor.

This home-like floor in Mace's Lane High School, Cambridge, Md., is a Mosaic Formfree® Pattern in Granitex Mosaics—youthful looking, long lasting, easy to clean. Johannes & Murray, Architects. George E. Adshead & Son, Tile Contractor.

Men's Pool, Syracuse University, Syracuse, N. Y. Ceramic Mosaic Tile gives a lasting, sanitary finish to pool lining and deck. Surrounding walls of Mosaic Glazed Wall Tile. Lorimer Rich & Assoc., Architect. Harry A. & F. Curtis King, Associate Architects. Stearns & Bergstrom, Inc., Tile Contractor.



MOSAIC CLAY TILE...

unharmed by

a thousand busy feet,

a thousand smudgy hands

Fifty years from today, a look inside these schools would tell you more eloquently than any words . . . there is nothing in the world to equal Mosaic Clay Tile for permanent beauty and satisfaction.

For helpful literature on the many types of Mosaic Clay Tile, write Dept. 30-23, The Mosaic Tile Company, Zanesville, Ohio. "The Tile Handbook," published by the Tile Council of America, will help you specify. And remember—you are always welcome at our showrooms and at those of your Tile Contractors.

• Copyright 1951 by The Mosaic Tile Co.

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1954 Our Sixtieth Year

THE MOSAIC TILE COMPANY

Member—Tile Council of America and The Producers' Council, Inc.
Offices, Showrooms and Warehouses across the Nation
Over 4000 Tile Contractors to serve you

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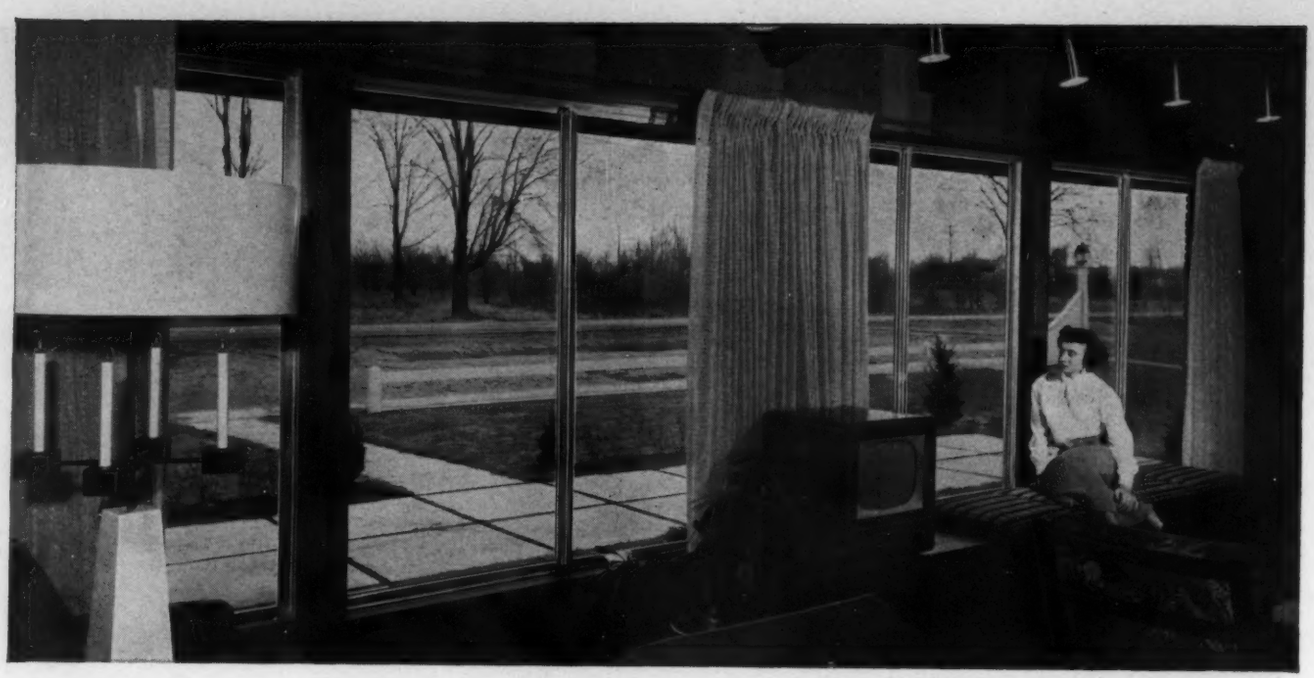


Create new functional beauty

WITH PETERSON

HORIZONTAL SLIDING

ALUMINUM WINDOWS

CLEAN, SIMPLE STYLING—NO FRILLS—NO PROJECTING PARTS

FINGERTIP "ROLL-OPEN" OPERATION ON GREASE-PACKED BALL BEARING ROLLERS

EASY TO CLEAN—sliding sash removes into room for convenient indoor washing.

WEATHERTIGHT—high pile mohair provides insulated, draft-free comfort . . . cuts heating and air-conditioning costs.

STURDY—hollow-type aluminum extrusions provide maximum strength for the life of the structure.

FURNISHED COMPLETE—built-in storms and screens with balanced vertical and horizontal sight lines.

WORK SAVING—requires no paint or putty . . . won't rust, rot, warp, stick or swell.

SAFE—positive, tamper-proof locking in closed position and in three ventilating positions.

50 STANDARD SIZES: All designs and sizes popularly specified for residential, commercial and monumental buildings supplied promptly. Standard windows up to six-foot height are available. Write for information on special sizes.

CONSTRUCTED OF sturdy, hollow-type aluminum extrusions —63-S-T5 alloy, minimum thickness .062"—engineered for maximum strength.

● **PETERSON SETS THE PACE in the trend to aluminum windows. Peterson styling, advanced engineering and horizontal-slide operation are without equal. Thousands of installations coast to coast.**

Write for Literature and Name of Nearest Dealer

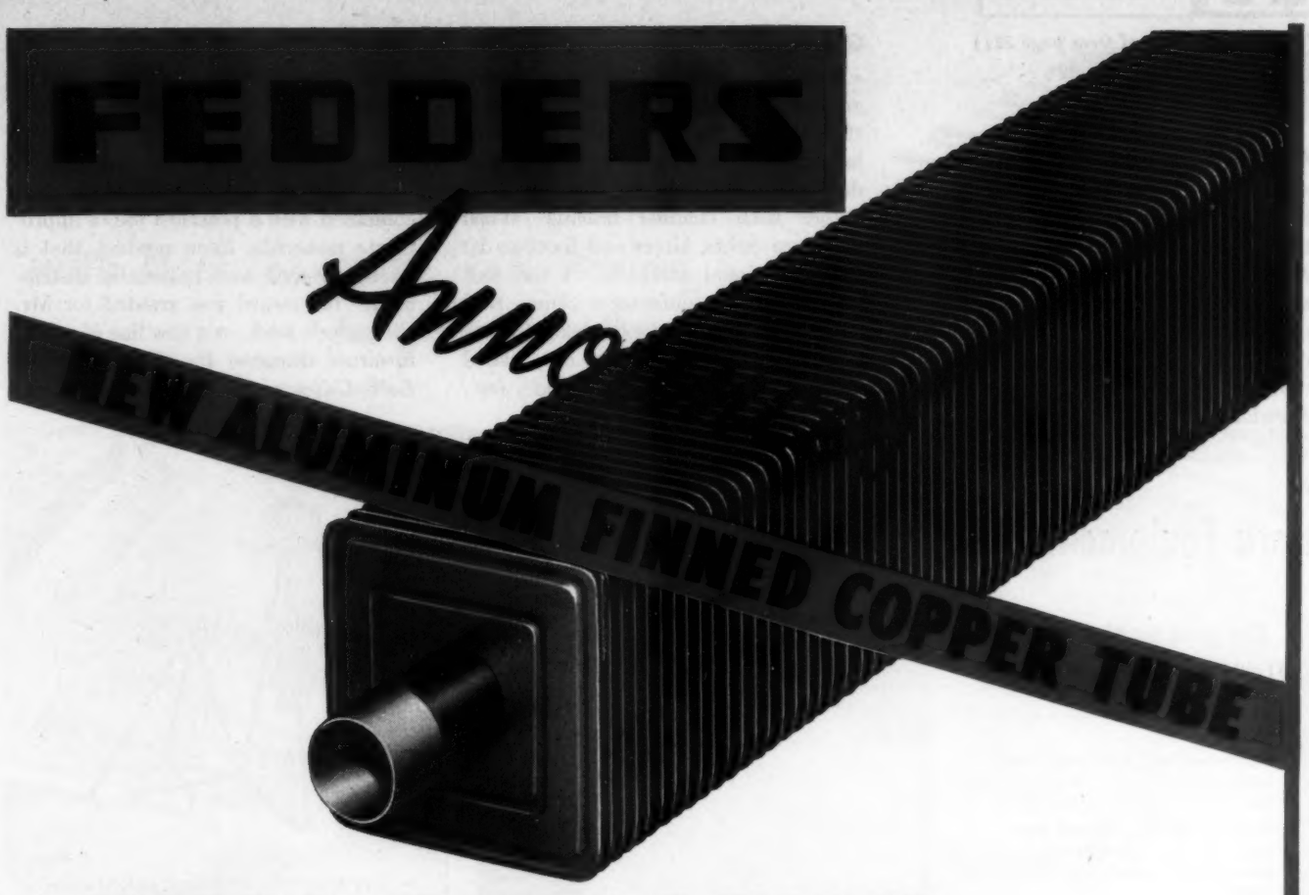
●

Inquiries From Interested Dealers Are Invited

PETERSON WINDOW CORPORATION

1383 E. Eight Mile Road • Ferndale 20, Michigan

FEDDERS



WALL RADIATION

Fedders Wall Radiation using seamless aluminum finned copper tubes provides the high capacities of the two most efficient heat transfer metals. It results in higher capacity per running ft. of radiation in steam or hot water systems.

Easy Installation

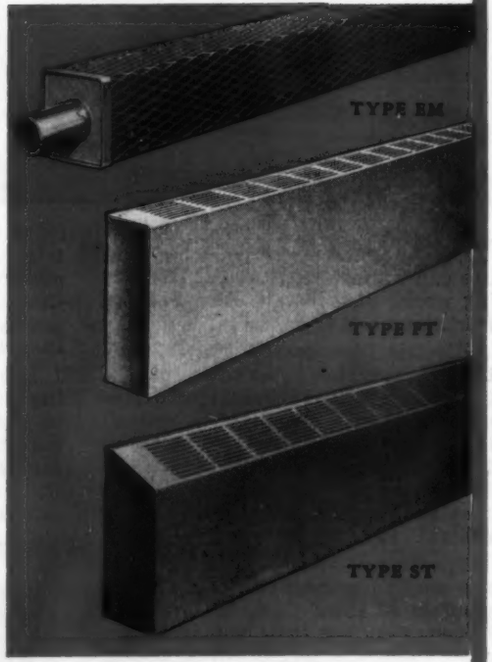
Copper tubes make it possible to use streamlined fittings which are easily sweated in on the job. One end expanded for quick, easy joining of adjacent tubes or fittings without couplings. Ends are protected and ready for soldering, no paint to clean off.

Fedders aluminum finned copper tube elements fit in Fedders decorative and protective sloping top, flat top or expanded metal covers, specially designed for commercial and industrial installations.

34 or 42 Fins Per Ft.

Elements with 1¼" nominal copper tube with 4¼" x 4¼" embossed aluminum fins spaced 34 or 42 per foot are available in 2' to 12' lengths in 6" increments.

Write Dept. AR for complete specifications and prices



Manufacturers of a complete line of Convector-Radiators, Baseboard Radiation, Wall Radiation, horizontal, downblow and gas-fired unit heaters and other heating products.

FEDDERS-QUIGAN CORPORATION
HEATING DIVISION TRENTON 7, N. J.

(*Furniture continued from page 221*)

NEW FURNITURE DESIGNS

• Herman Miller has added new designs by George Nelson and Charles Eames to his line of contemporary furniture. Nelson's contributions include a loveseat, lounge chair, coffee table, open arm chair and an end table. Eames collection consists of a sofa and additions to his upholstered wire chairs. *Herman Miller Furniture Co., Zeeland, Mich.*

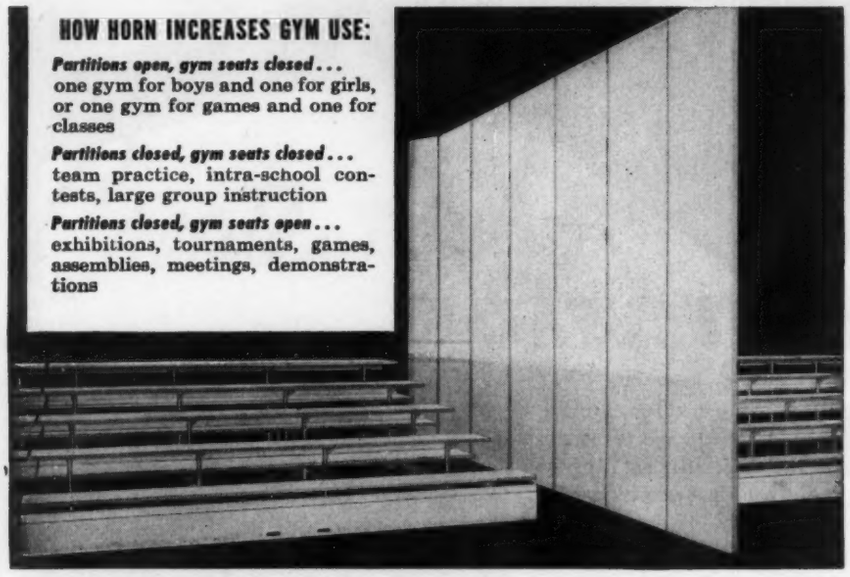
GYM SEATS

• Telescopic gym seats of a new design are free-standing on a self-supporting steel understructure. Each standard-length row is supported on four sets of dual-angle vertical uprights, tied together with channel bracing. Wood members (seats, risers and footboards) give additional strength to the seat section. The manufacturer claims that there is no appreciable deflection or sideway when the seats are loaded to capacity. *Fred Medart Products, Inc., 3535 DeKalb St., St. Louis 18, Mo.*

FURNITURE DESIGN AWARD

• One of two 1954 Design Award Medals was presented by the Industrial Designers Institute to *Dave Chapman* of Chicago. Granted for "noteworthy and fresh approach to a design and function combined with a practical use of appropriate materials, for a product that is mass-produced and nationally distributed," the award was granted for Mr. Chapman's work on a new line of school furniture designed for the *Brunswick-Balke-Collender Co.* of Chicago.

Horn Equipment... for multi-gym use with ease!


HOW HORN INCREASES GYM USE:
Partitions open, gym seats closed... one gym for boys and one for girls, or one gym for games and one for classes
Partitions closed, gym seats closed... team practice, intra-school contests, large group instruction
Partitions closed, gym seats open... exhibitions, tournaments, games, assemblies, meetings, demonstrations

Yes, now your every need for gym use can be met without back-breaking work. Just install Horn Folding Partitions and Gym Seats!

Electrically-operated Horn Partitions give you *two* gyms with a flick of the finger! In approximately two minutes, they unfold smoothly and silently, seal space between door and floor, lock securely in place without bolts. When the full gym is needed, they fold into compact, space-saving units... as easily as they are opened.

Spectators, even the tallest, cheer the ample leg-room and chair-height comfort of Horn Gym Seats. When folded, they use little valuable floor space and protect players with smooth, sloping surfaces.

Horn Gym Seats extend quietly in one continuous motion through the telescoping principle. And *each* row automatically locks as it opens. To close, seatboards rise to an upright position and practically fold all by themselves.

Horn maintains a design engineering service to help solve *your* problem in gymnasium flexibility. And Horn Equipment is custom-installed by factory-trained men. Why not write for the name of your nearest Horn representative?

Seen the big, new catalog on Horn Folding Classroom Wardrobes? Send for your free copy today!

Horn

Horn School Equipment Division of
THE BRUNSWICK-BALKE-COLLENDER COMPANY
623 South Wabash Avenue • Chicago 5, Illinois

TELEPHONE SEAT

• A new telephone stand, called a *gossip bench*, is available in a coffee-colored birch seat and black iron frame or in various pastel combinations. *Phillips Furniture Co., 2560 Fon du lac Dr., East Peoria, Ill.*

WINDOWS AND DOORS

(*Continued from page 221*)

INSULATED WINDOW

• New glass-to-glass sealed *Thermopane* window units will be made with two sheets of double-strength "A" quality sheet glass with a ¼ in. dehydrated insulating air space between them. With an over-all thickness of ½ in., it is expected that the unit will be easy to glaze and handle on construction jobs. It will be made for the present in two wood sash sizes: 45½ by 25½ in. and 42½ by 22½ in., and in two metal sash sizes: 36 by 24 in. and 34 11/16 by 22 11/16 in. *Libbey-Owens-Ford Glass Co., Rossford, Ohio.*

ALUMINUM-TYPE HINGE

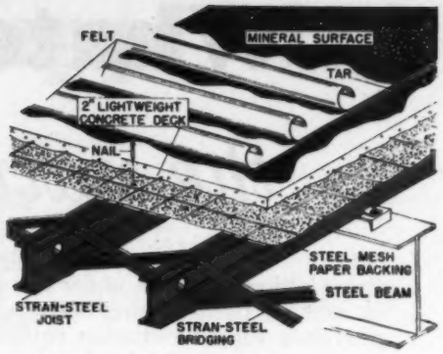
• The *Luma-Sheen hinge*, made of steel with an aluminum-type finish, is said to provide a true color match for all aluminum hardware and trim. *C. Hager & Sons Hinge Manufacturing Co., St. Louis, Mo.*

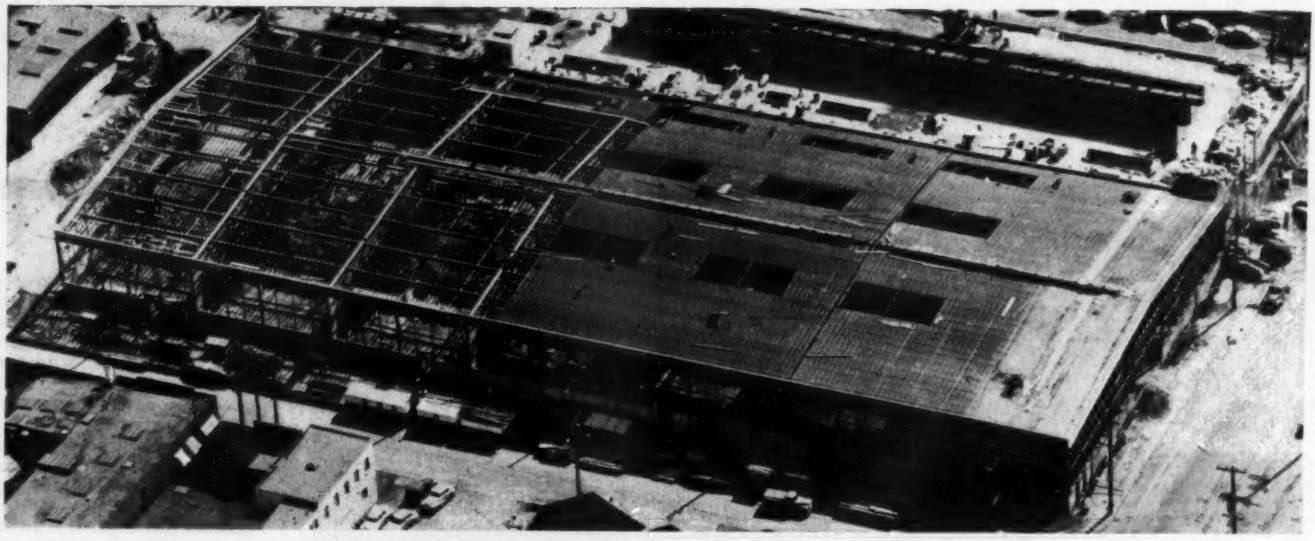
(*Windows and Doors continued on page 242*)

Reduce Roof Weight

with Nailable Stran-Steel® Purlins

for pitched or flat roofs





40 per cent reduction in roof weight of San Francisco's Pacific Greyhound Terminal was possible by using Stran-Steel Purlins and lightweight concrete deck.

The building covers seven acres and makes use of nailable Stran-Steel studs, joists and purlins throughout. Designers: Skidmore, Owings and Merrill.

LIGHTWEIGHT: Easy to handle and place.

NAILABLE: Special groove deforms and clinches nails in a grip of steel. Use ordinary carpenter's tools. Saves field costs of clips and attachments.

ECONOMICAL: Easily and quickly erected by welding or sheet metal screws. Use of Stran-Steel members speeds completion by providing factory-punched clearance holes for plumber's pipe and electrician's conduit. Entire building can be framed and closed in without costly interruptions.

VERSATILE: Stran-Steel framing comes in standard depths, gauges and lengths. Can be used with all types of decking collaterals.

AVAILABLE: On-the-spot distributors and dealers in all major building centers.

FREE—Write for detailed information about Stran-Steel Framing and its application to all types of buildings. (See your Sweet's Catalog Insert.)

GREAT LAKES STEEL CORPORATION
Stran-Steel Division
Ecorse, Detroit 29, Michigan
NATIONAL STEEL CORPORATION

PRODUCER OF NAXTEN HIGH-TENSILE STEEL

Whatever your radiation

...*the nation's most complete line!*

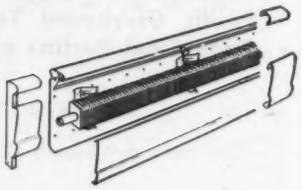
From killing icy drafts under picture windows in homes to meeting tight heating budgets in schools . . . from providing rugged radiation equipment for factories to meeting rigid standards of styling and efficiency in hotels, hospitals, churches, offices!

No matter what your radiation problem—you can solve it with TRANE-engineered radiation products. TRANE manufactures the nation's most complete line of fin-type radiation . . . makes it easy for *you* to save time by concentrating responsibility in *one* reliable source.

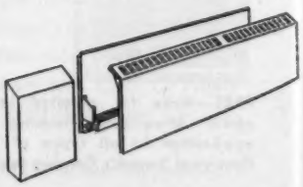
Since 1925 TRANE has led the way in developing and improving radiation products. You can depend on TRANE quality and TRANE ratings in job after job after job.

So make *your* next job a *one-order* job. Call your nearby TRANE Sales Office, or write TRANE, La Crosse, Wisconsin, for complete information.

TRANE Baseboard Convectors assure your homeowner clients greater comfort by heating where the cold begins—along *outer* walls, *under* windows. Give greater freedom of furniture arrangement, add beauty to any home. And they may be installed up to 50% faster because cabinet and coil come preassembled, closures *snap* together. Nonferrous heating element. 8¼" and 12" heights.



TRANE Wall Line Convectors combine low initial cost with low installation cost to meet even the tightest heating budgets. Designed for attractive wall-to-wall applications in schools, office buildings, institutions, wherever *high capacity* and *economy* are paramount. Rugged construction, extra reinforcements and full back. Cabinet heights 14", 20", 26"; depths 4" and 6"; lengths to 72".



need – Trane can supply it !

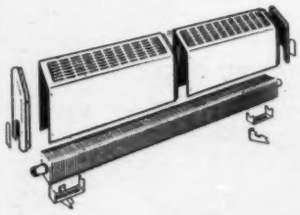
one source · one responsibility

Specify **TRANE** *for all your radiation needs*

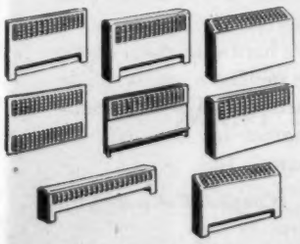
MANUFACTURING ENGINEERS OF AIR CONDITIONING, HEATING, VENTILATING AND HEAT TRANSFER EQUIPMENT

The Trane Company, La Crosse, Wis. • East. Mfg. Div., Scranton, Penn. • Trane Co. of Canada, Ltd., Toronto
90 U. S. and 15 Canadian Offices

TRANE Wall-Fin brings draft-free heating to long wall and window areas. Large tube diameters make it especially suitable for loop systems where pressure drop is critical. Use single element where capacity requirements are low, multi-tiered elements where high capacity per lineal foot is required. Sloping-top cabinets or expanded metal grilles. Choice of 1¼" or 2" steel or 1" or 1¼" nominal copper elements.



TRANE Convectors combine efficiency with compactness and beauty. Aluminum-copper heating element responds quickly, provides heat instantly . . . eliminates wasteful overheating common to cast iron radiation. Ideal for homes, offices, institutions. Can be installed free-standing, recessed or wall-hung. 21 cabinet styles with flat or sloping tops. Knob or chain dampers optional.



(Continued from page 238)

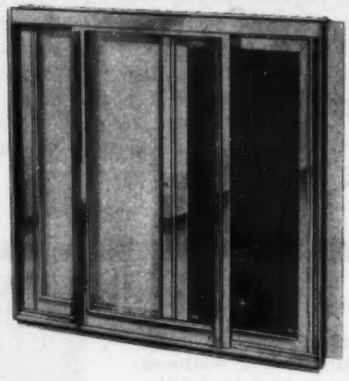
INDUSTRIAL DOOR OPERATOR

• Designed for heavy industrial use, the trolley-type *Sedcon Industrial Door Operator* is available in two types: The reversible type, available in three motor ratings from ¼ to ½ hp for doors from 120 to 270 sq ft, permits the door to be stopped and its travel reversed at any point. The non-reversible type, available in ratings of ¼ and ⅓ hp for door sizes of 100 to 144 sq ft, is designed for plants in which change of travel direction is not required during operation. The door must complete its initial travel before reversing, but can be stopped at any height by actuating the pushbutton control. *Sterling Electronic Door Control Corp., Rock Falls, Ill.*

METAL WINDOW WEATHERSTRIP

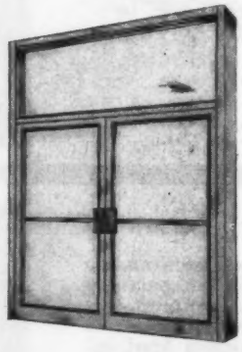
• A new type of metal weatherstrip for steel and aluminum windows, *Seal-Draft*, provides a seal for ventilator perimeters of casement-awning and projected metal windows against escape of heat and infiltration of wind, water, dirt and noise. Made of thin-guage, spring-acting material, this weatherstrip does not interfere with the operation of the ventilator or with the placement of screens or storm windows. *Sun Screen Products Corp., Spokane, Wash.*

HORIZONTAL SLIDING WINDOW



• *Glidemaster*, a new horizontal sliding aluminum window, incorporates a Silicone weather seal at the interlocking meeting rail, wider integral self-aligning flanges and a tamper-proof bolt-lock. The inside double-glazed panes can be removed for washing. Aluminum-mesh screen comes with each unit. *Whizzer Products Co., Pontiac, Mich.*

ALUMINUM-FRAMED DOOR



• Narrow stile *Val-u-Line* aluminum doors and entrances feature standard 1⅝-in. lock cylinders, no exposed fastenings, snap-in glass stops and all extruded aluminum construction. In addition, these doors have pile weatherstripping at meeting stiles on pairs of doors and come in stock sizes with Val-u-Line Series hardware only. Stock lengths of frame members are available for special construction. *Variety Manufacturing & Engineering Co., 810 W. Fullon St., Chicago 7, Ill.*

(Continued on page 246)

What is a **NECA** *qualified electrical contractor?*

THE SEAL THAT SYMBOLIZES ELECTRICAL SATISFACTION
NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION, INC.
QUALIFIED ELECTRICAL CONTRACTORS
NECA
★ ® ★

The seal and the letters – NECA – stand for the National Electrical Contractors Association. Any electrical contractor qualifying for association membership can offer the architect or engineer:

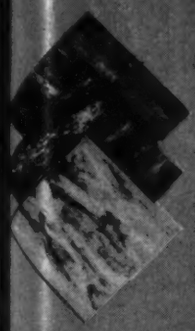
1. **A GUARANTEE,** in writing, covering parts *and* workmanship.
2. **INTERPRETIVE ENGINEERING** – on-the-job interpretation of your plans – accurately, practically, to produce the results you expect.
3. **TRAINED MANPOWER** – an adequate pool of craftsmen, thoroughly trained from apprenticeship up, to handle any size job.
4. **COMPETENT SUPERVISION,** by men who know electrical products, practices, standards and codes.

These factors and more mean protection of your ideas, your plans, your prestige. Why not discuss your next job with your Qualified NECA Contractor? You'll find his name under the NECA Seal in your Classified Telephone Directory.

FOR BUSY INDOOR HIGHWAYS . . . . AND DURABLE, YET BEAUTIFUL WALLS

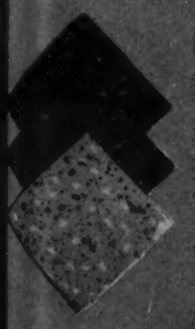
Specify

Vinylflex
PLASTIC FLOOR TILE



Where greater greaseproof properties the every day resistance to alkalis, mild acids, fats, oils, naphtha and even gasoline is specified . . . VINYLFLEX, the all purpose vinyl plastic floor tile, is the answer. VINYLFLEX is exceptionally resilient, yet tough, assuring longer wear with minimum care. VINYLFLEX can be applied on or below grade.

Poly-krome
RESILIENT TERRAZZO TYPE TILE



HAKO POLY-KROME, a brilliant resilient type tile with brand new beauty that sparkles on floors. The vari-colored chips in each POLY-KROME tile lend themselves perfectly to practically any commercial and residential room decorative scheme. POLY-KROME is inexpensive and easy to install on or below grade.

Asphalt Tile
FLOORING

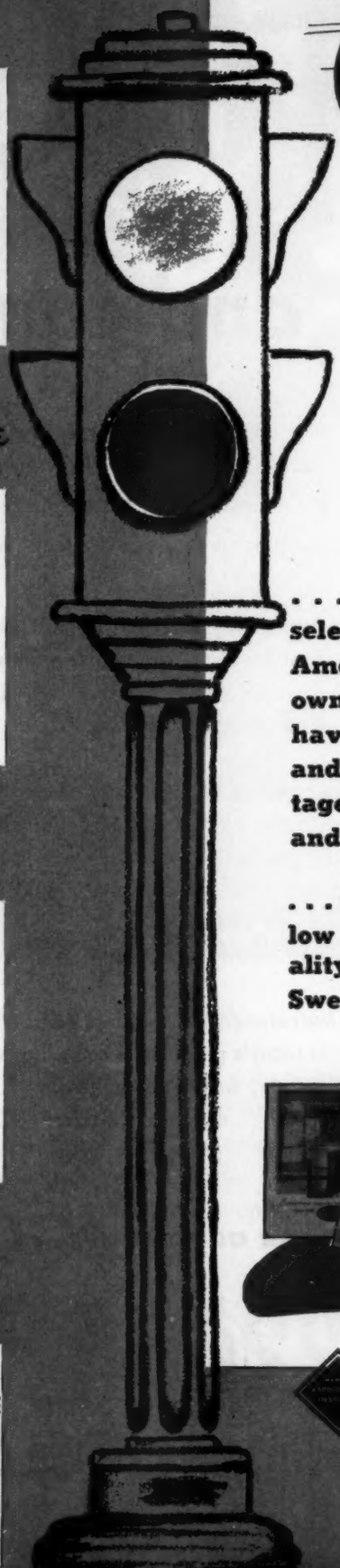
HAKO ASPHALT TILE features modern new pastel and standard marbleized colors in limitless patterns and combinations. For permanent protection, lasting utility, inexpensive luxury and durability, HAKO ASPHALT TILE is the choice of architects and builders all over America. Glamorous colors . . . lasting durability . . . ease of installation . . . effortless to clean.

Coronet
PLASTIC WALL TILE

and HAKO

THRIFT LINE TILE

★ Glamorous colors . . . lasting durability . . . ease of installation . . . effortless to clean.



GO! WITH PROVED HAKO FLOOR AND WALL TILES

. . . and specify with confidence that you have selected the greatest floor and wall tiles in America. Each of these HAKO tiles have their own individual design application . . and all have thoroughly proved themselves both in test and actual service. All have these plus advantages . . exceptional lifetime beauty, easy, fast and inexpensive installation.

. . . for downright durability, specify HAKO for low cost floor and wall coverings and individuality for every room or application. See them in Sweets File No. 12i-Ha or AR-4-54

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We can get more copper than we now have. Although industry and government have been consuming more copper than in any previous peacetime period, production has kept pace with this increased demand. And producers are not working at full capacity!

More copper keeps on coming. Eleven major new projects in the U. S. will start producing in the next 3 years. These mines will add 250,000 tons to our annual production—more than *¼ of all the domestic copper mined during 1953*. In addition, recent improvements in mining techniques now make it possible to obtain copper from ores considered commercially unworkable in the past.

Copper is virtually indestructible. At least 3 out of every 4 pounds of copper used in today's products, when scrapped, can be re-used in the future. Every day we are adding to our "copper capital". The more copper we use . . . the more we have!

Copper or its alloys provide these advantages . . .

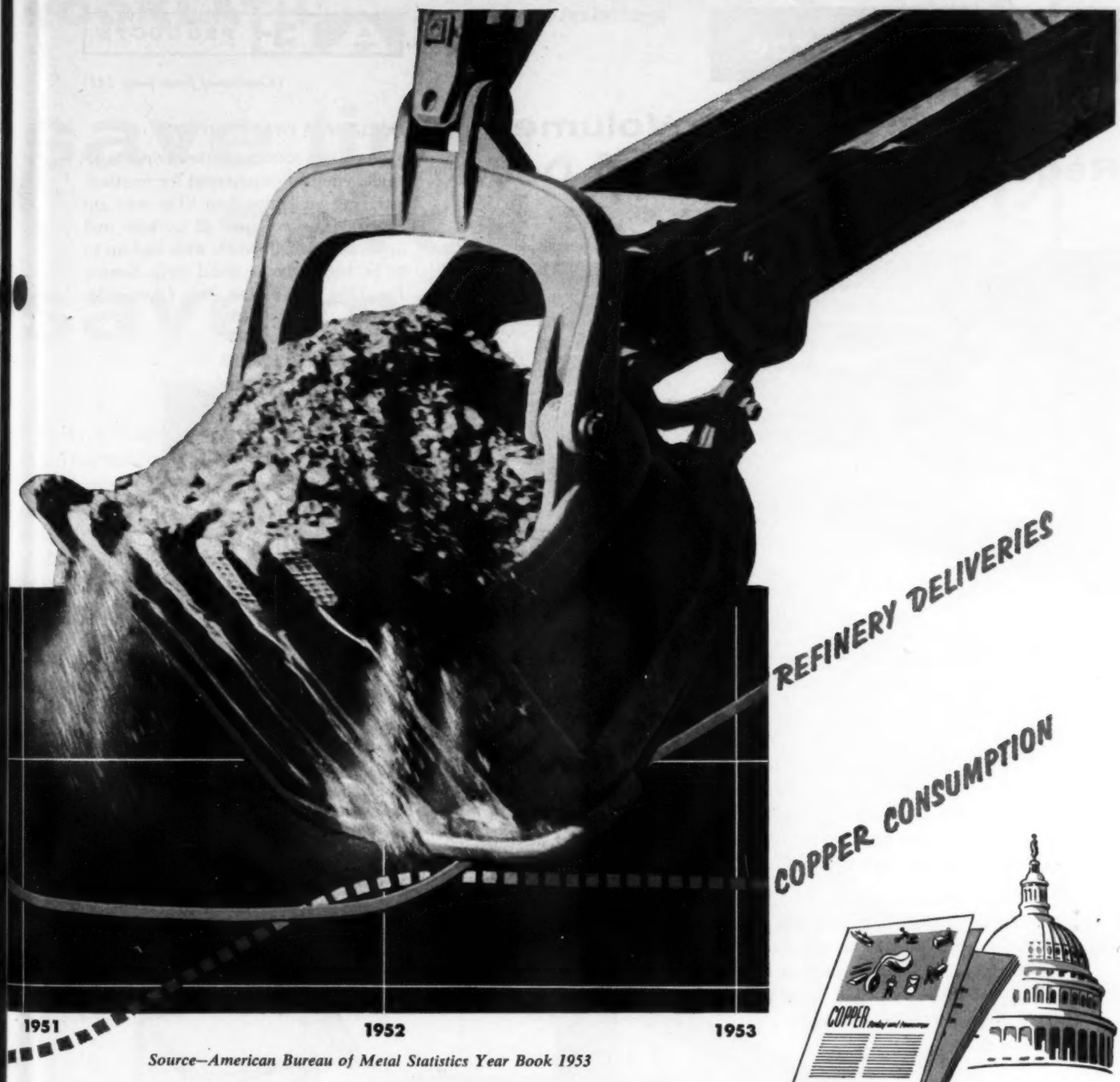
Best conductor of electricity commercially available.

Does not rust . . . high corrosion resistance.

Best heat transfer agent of all commercial metals.

Easy to machine, form, draw, stamp, polish, plate, etc.

Welds readily . . . excellent for soldering and brazing.



Source—American Bureau of Metal Statistics Year Book 1953

Copper has a new ability to serve you. Many of your problems are being solved in the laboratories of the copper and brass industry. Whether it's a new alloy, a different temper or a special property . . . copper can help you develop new ideas. Copper can bring old methods up to date. Call a supplier of copper and brass and convert your thoughts to action!

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Foreword, U. S. Dept. of Commerce
B.D.S.A. Copper Quarterly, August 1954

For information about U. S. copper supplies including free copies of this Government report and the new booklet, "Copper . . . Today and Tomorrow", send attached coupon to:

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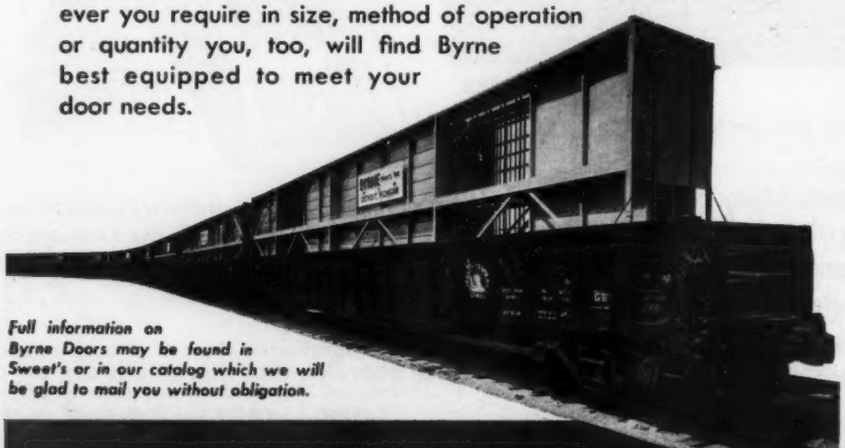
For the Air Force

Byrne Meets High Volume Requirements for Hangar Doors

LARGE doors in large volume—that is the assignment being fulfilled by Byrne for the Air Force.

Constructed for maintenance hangar openings, these doors are produced in leaf sections which, in combination, meet the dimensional specifications for door width. Installed at various bases throughout this country and abroad, they meet the requirements of openings 64 feet high and up to 570 feet wide. They are of the motor operated horizontal-sliding type with each leaf having its individual power operation.

When large doors are needed in aviation or in industry, Byrne's specialized engineering abilities and extensive manufacturing facilities are the answer to innumerable closure problems. Whatever you require in size, method of operation or quantity you, too, will find Byrne best equipped to meet your door needs.



Full information on Byrne Doors may be found in Sweet's or in our catalog which we will be glad to mail you without obligation.

BYRNE doors, inc.

3321 East 8 Mile Road, Ferndale, Detroit 20, Mich.
101 Park Ave., New York 17, N.Y.
Dept. A-6 Colorado Bldg., Washington 6, D.C.

AE PRODUCTS

(*Continued from page 242*)

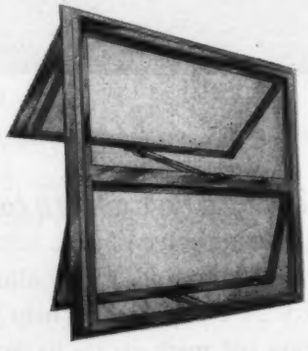
DOOR WEATHERSTRIP SET

• A new line of door weatherstrip sets includes complete equipment for weatherstripping an entire door. The sets are available in two sizes: 32 in. wide and up to 84 in. high; 36 in. wide and up to 84 in. high. *Master Metal Strip Service, Inc. 1720 N. Kilbourn Ave., Chicago 39, Ill.*

DOOR JAMB GUARD

• *Stan-Guards* are flexible Bakelite vinyl resin-base plastisol door jamb covers designed for installation on almost any manually or automatically operated door of wood, metal or glass construction. The folded strips, flexible under all weather conditions, let the door swing freely while guarding fingers in the jamb. *Magic Door Div., The Stanley Works, 195 Lake St., New Britain, Conn.*

VENT WINDOW



• *Select-A-Vent*, an awning-type aluminum window, offers selective ventilation. Each vent operates separately by means of an operating bar which folds flush against the window. The window has double toggle action for tight closure. Aluminum screens can be attached to the inside by integral clips. *Southern Sash Sales and Supply Co., Sheffield, Ala.*

(*Products continued on page 250*)

U. S. G.'s TRUSSTEEL* STUD-ROCKLATH* partition assemblies

save time... save labor... save materials

U. S. G.'s TRUSTEEL Stud, ROCKLATH hollow partition assembly goes up faster than any comparable system presently in use. Ease and speed of erection (no special tools are required) cut time and labor costs. The TRUSTEEL Studs simplify concealment of ducts, pipes and wiring; stud width may vary as required from 2½" to 3¼", 4" or 6".

The assembly is:

sound-resistant—44.0 or 48.0 decibel sound transmission loss rating depending on plaster aggregate used.

fireproof—1-hour fire rating obtained using perforated ROCKLATH plaster base with STRUCTO-LITE* plaster or certain sanded plaster proportionings.

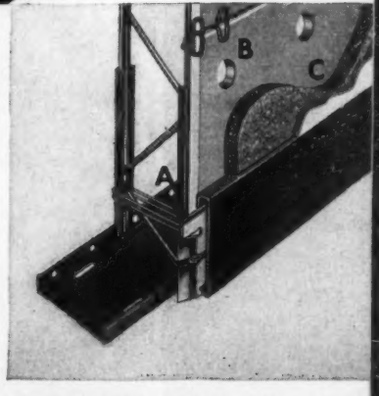
lightweight—9.5 to 16.5 lbs. per sq. ft. depending on plaster aggregate used. Permits savings of structural steel in many cases.

New TRUS-LOK clips attach either plain or perforated ROCKLATH plaster base to the TRUSSTEEL studs. Ask your U. S. G. Architects' Service Representative for complete details; or write Dept. AR-4, 300 W. Adams St., Chicago 6, Ill.

*T. M. Reg. U. S. Pat. Off.

Lather ties steel shoes which hold the TRUSSTEEL stud rigidly in place.

TRUS-LOK clip attaches easily, holds perforated ROCKLATH plaster base firmly in position.



Cutaway view of the assembly, showing stud (A), TRUS-LOK clip (B) and plaster base (C).

UNITED STATES GYPSUM

UNITED STATES GYPSUM

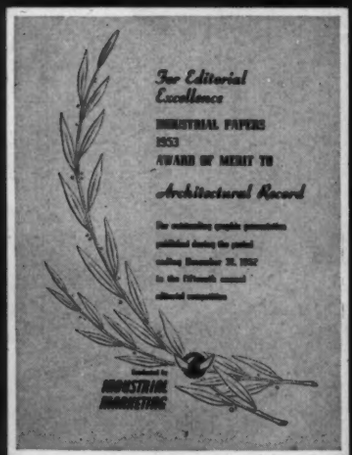
the greatest name in building

This is one reason why, year after year, Architectural Record leads the field in Architect circulation Engineer circulation Advertising volume*

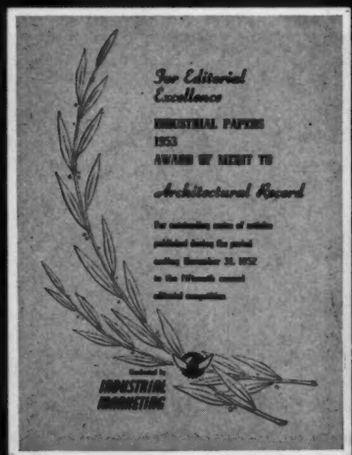
* *1953: Architectural Record, 2,931 pages; second magazine, 1,824 pages. First seven months 1954: Architectural Record, 1,628 pages; second magazine, 1,132 pages. Source: Industrial Marketing.*

First Award 1954—best graphic presentation—"Hotel Copan, Sao Paulo, Brazil." October 1953.

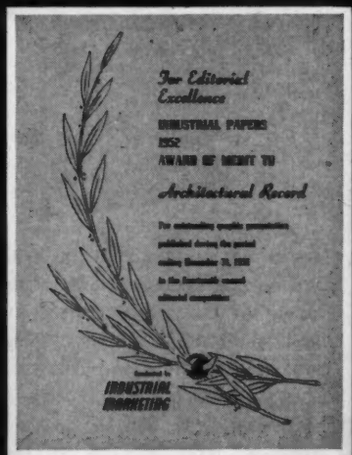
3 Awards



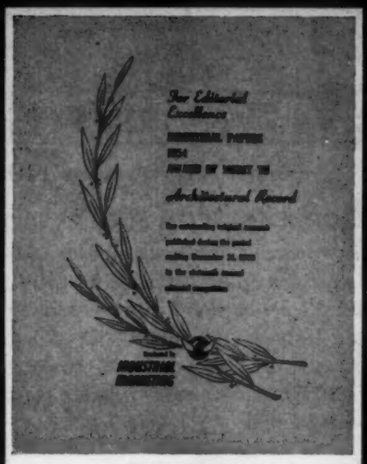
Award of Merit 1953—outstanding graphic presentation—"Building in the Tropics," August 1952.



Award of Merit 1953—outstanding series of articles—"Philosophy of Architecture" (1952).



Award of Merit 1952—outstanding graphic presentation—"Vacation House in Oregon," July 1951.



Award of Merit 1954—outstanding original research—"Guns and Butter and Babies," November 1953.

The American Institute of Architects
Architectural Journalism Awards 1953
First Award-Class 6
Photographs of architectural subjects published in magazines
Photographer: Ezra Stoller
Published by Architectural Record

First Award 1954—"Best photograph of an architectural subject published in a magazine"—American Institute of Architects' Competition.

The American Institute of Architects
Architectural Journalism Awards 1953
First Award-Class 3
Articles in professional architectural magazines
Author: Pietro Belluschi
Published by Architectural Record

First Award 1954—"Best article in a professional architectural magazine"—American Institute of Architects' Competition.

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confirm the judgment of readers and advertisers

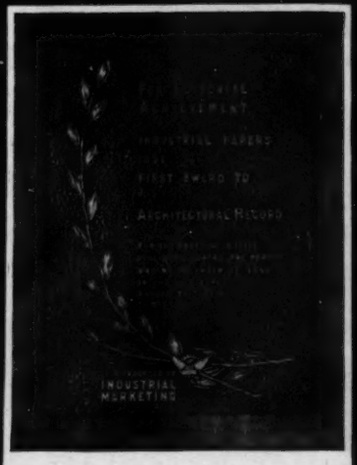
Eighteen of these 31 editorial awards have come to Architectural Record since 1951 (four of them this year), including thirteen awards in Industrial Marketing's Annual Business Paper Editorial Achievement Competition—*a record unmatched by any other magazine.*

Architectural Record is proud again to be honored this year by the judges of Industrial Marketing's editorial competition for *best graphic presentation* and *outstanding original research*—two aspects of editorial content of greatest importance to architects and engineers.

Architectural Record's many editorial awards strongly confirm the judgment of . . .

- *Architects and engineers* who have steadily voted Architectural Record their preferred magazine in 58 out of 65 readership studies SPONSORED BY BUILDING PRODUCT MANUFACTURERS AND ADVERTISING AGENCIES and . . .
- *Advertisers* who year after year place more pages of advertising in Architectural Record than in any other architectural magazine—44% more thus far in 1954!

Put the workbook of architects and engineers to work for your sales force. You will reach more architects—and more engineers—*at the lowest cost per page per thousand.* And your coverage of over 85% of *all* architect-designed building is documented by *Dodge Reports.*



First Award 1951—best single issue—October 1950 issue featuring "Mental Hospitals and Schools."

First Award 1951—best graphic presentation—"Architecture in Hawaii," October and November 1950.

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details
1/8" THICK FACE VENEER
1/12" CROSS BANDING
VERTICAL SOLID CORE BLOCKS
EDGE STRIPS TONGUE AND GROOVED INTO CORE AND EACH OTHER

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HARDWOOD MASTER-FLUSH DOORS

with 1/8" veneers over solid cores –

- ✓ Give stronger, more permanent functional performance
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- ✓ Permit hardware, louvre or light applications in *any* area.

When you want the best for institutional requirements specify Hardwood Products' MASTER-FLUSH Doors—especially where unusually hard usage and abuse are expected. They feature Hardwood Products' *solid core* construction for exceptional strength and rigidity. This consists of vertical core blocks in alternate random lengths with edge strips tongue and grooved *into the core and into each other.* Cross banding for stability and additional strength — plus 1/8" thick face veneers hot plate press bonded, makes exceptionally solid unit. A full range of wood veneers is available. Consult Sweet's 15c/HA or write for further details.

Write for this brochure describing Hardwood Products Sound Insulating Doors in easy-to-understand sound decibel language. Box AR

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PRODUCTS CORPORATION **DOORS**

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AE PRODUCTS

(Sinks continued from page 221)

NARROW CAST-IRON SINK

• A new *narrow two-compartment cast-iron sink* can be installed in either enameled steel or wood cabinets having a front-to-back dimension of 24 in. The double sink measures 32 in. long by 20 in. wide. *Universal-Rundle Corp., New Castle, Pa.*

PLASTIC LAUNDRY TUB

• A *Fiberglas-reinforced plastic laundry lab* on a wrought iron stand comes in green, yellow, blue and white to match the decor of any kitchen or laundry. The tub weighs only 10 lb, and the stand weighs 10 lb. The capacity of the 24-in.-square, 12-in.-deep tub is 26 gal. Double units can be formed by joining two tubs with a stainless steel lip. *Gray-Wilson Co., Detroit, Mich.*

BOWLS AND SINKS

• A new line of *plumbing ware* is being offered by Active Tool & Mfg. Co. Included are drainboard sinks, lavatory washbowls and stainless steel single- and double-bowl sinks. *The Active Tool & Mfg. Co., Detroit, Mich.*

PLASTIC DRAIN TRAY

• A lightweight *Lustro-Ware Drain-Tray*, molded of *Bakelite* polyethylene, protects kitchen sinkboards. Available in red, yellow, and white colors molded throughout, the 15½- by 20-in. drain tray is resistant to water, grease, soap, food acid stains, shock and corrosive chemicals. *Columbus Plastic Products, Inc., Columbus 4, Ohio.*

(Products continued on page 252)

here's why GrateLite* is great!

eye comfort you can measure
300 F.C. with only
1.11 C.P./Sq. In. Brightness

and here are the figures to prove it . . .

Foot-Candles, Efficiencies, Brightness Readings

In our own showrooms we've installed a 15' x 16' GrateLite Ceiling. By switching on various lamp arrangements we can deliver from 28 to 300 foot-candles 7' 9" below the GrateLites. Measurements at right give GrateLite efficiency figures and brightness readings at 30° and 45° below the ceiling.

THESE FIGURES PROVE GRATELITE in a class by itself for modern high intensities, safely within comfort ranges plus a high degree of diffusion.

AREA: *15' x 16' (240 Sq. Ft.)*
GRATELITES: *Suspended 18" below ceiling*
FT.-CANDLES: *Taken 7' 9" below GrateLite*
BRIGHTNESS READINGS: *Taken with Guth Electronic Meter*
LUMINAIRES: *Guth M-5385/TO*
ROOM COLORS: *3 walls—light green—60% R. F. Floor—15% R. F.*

It's all in the light-saving cubes—and only GrateLite has them!

Send for free booklet "The GrateLite Story" Also "Glare Factors" and "Visual Comfort Indexes".

Guth

EDWIN F. GUTH CO. • ST. LOUIS 3, MO.

Leaders in Lighting since 1902

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specify Grade-Marked

Galvanized Sheets

for PEAK PERFORMANCE

Engineers and designers of industrial and commercial buildings know galvanized sheets to be superior building material for this type of construction—particularly for roofing and siding. They know that time-tested galvanized sheets offer:

- **SHORT-TERM *plus* LONG-TERM ECONOMY**
  Low *initial* cost, low *application* cost, low *per-year* cost
- **STRENGTH OF STEEL; RUST-PROTECTION OF ZINC**
  Withstand rough treatment, add structural strength and are fireproof

All galvanized sheets give years of useful service. But the *heavier* the zinc coating, the *longer* the life of the base sheet. Because various weights of zinc coating look alike on the surface, it pays to *specify a grade-marked sheet* . . . Get the heaviest coating you can buy!

ZINC INSTITUTE 2 OZ. COATING REG. U.S. PAT. OFF. SEAL OF QUALITY

IT'S THE ZINC THAT STOPS THE RUST

For long, rust-free service, specify a heavy duty sheet such as the "Seal of Quality" with a zinc coating of *2 ounces per square foot.* For heavier coatings order according to ASTM Specification A 93.

ATTENTION: MAINTENANCE DEPTS.

Get the facts on MZP (Metallic Zinc Paint) for structural steel and galvanized surfaces. Also, zinc for cathodic protection and grounding electrodes. Check coupon below.

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Company_____

Name of Individual_____

Address_____

City or Town_____ Zone_____ State_____

AE PRODUCTS

(*Heaters, Coolers continued from page 221*)

BASEBOARD RADIATORS

• *Shaw panel baseboard radiators* deliver "Air-e-Ated Radiant Heat" from hot water or steam systems. Cool air is warmed as it passes over three vertical steel heating plates in each 2-in. section. The constantly flowing air stream through the widely spaced heating plates, says the manufacturer, keeps the interior surfaces clean and free from dust. Installed 3 to 4 in. above the floor, the radiator is 3 in. wide, 8 in. high and from 2 ft 5 in. to 72 ft 7 in. long. *Shaw-Perkins Mfg. Co., 201 East Carson St., Pittsburgh 19, Pa.*

• Three lines of *baseboard radiation* have been added to the Dunkirk Blue Circle heating package: A *copper-aluminum unit* has seamless copper tubes with aluminum fins. *Steel tube-steel finned elements* are packaged in specified lengths. *Cast-iron panels* for forced hot water and two-pipe steam systems are available in 18- and 24-in. lengths providing 6-in. increases in unit assemblies. *Dunkirk Radiator Corp., Dunkirk, N. Y.*

• *Slide-in front radiator panels* are now available on Fedders Types F, FE and FB convector radiators. *Fedders-Quigan Corp., Hancock & Lalor Sts., Trenton 7, N. J.*

WALL CONVECTORS

• *The Wall Line Convector* was designed specifically for heating institutional and industrial buildings with bands of windows. Cabinets with sloping tops enclose a high-capacity heating element. Corner cabinets are available to permit continuous installation on two walls. The units are available in 14-, 20- and 26-in. heights and in lengths ranging from 2 to 6 ft in increments of 4 in. Cabinet depths are 4 and 6 in. *The Trane Co., La Crosse, Wis.*

(*Continued on page 256*)

Bathroom design by Pietro Belluschi, F.A.I.A.

"CLAY TILE...AN IDEAL MEDIUM FOR MODERN DESIGN... OFFERS LASTING BEAUTY, EASY CARE"

Pietro Belluschi

Here, in clay tiles of contrasting grays and black, is architect Pietro Belluschi's conception of a modern bath . . . a combination of standard clay tiles and stimulating modern design.

The spacious clay tiled countertop, which doubles as a vanity, can be easily adapted for dual sinks to ease "traffic congestion". And through years of wear and tear, clay tile will remain bright and beautiful with minimum effort.

Clay tile beautifies and protects other key spots like the plunge area, the roomy towel storage niche, the shower walls, floor and ceiling and, of course, the entire floor surface.

The style and design possibilities of clay tile enable you to give your clients a custom effect with standard clay tiles. When you start your next commercial, institutional or residential project, remember this: clay tile's range of colors, shapes and types give you the widest scope of any modern building material.

You can tell your clients, too, that clay tile never fades, burns, stains or needs refinishing. Specify clay tile and you specify beauty and long range economy. You spread the cost of a clay tile installation over a lifetime!

Tile Council of America, Room 3401, 10 East 40th St., N. Y., or Room 433, 727 W. 7th St., Los Angeles, California

The Modern Style is

GENUINE CLAY tile

PARTICIPATING COMPANIES: American Encaustic Tiling Co. • Architectural Tiling Co., Inc. • Atlantic Tile Mfg. Co. B. Mifflin Hood Co. • Cambridge Tile Mfg. Co. • Carlyle Tile Co. • General Tile Co. • Gladding, McBean & Co. • Jordan Tile Mfg. Co. Mosaic Tile Company • Murray Tile Co., Inc. • National Tile & Mfg. Co. • Olean Tile Co. • Pomona Tile Mfg. Co. • Robertson Mfg. Co. Royal Tile Manufacturing Co. • Sparta Ceramic Co. • Summitville Tiles, Inc. • United States Quarry Tile Co. • Winburn Tile Mfg. Co.

The Disappearing Act that never fails

A billion-mile network of buried faith lies stretched across America. It's Vitrified Clay Pipe — the product that disappears underground . . . and *has* to be trusted. Clay Pipe is sealed in by streets and sidewalks . . . blocked off by building foundations . . . piled over with earth and rock.

Everybody trusts it, because Clay Pipe has a vital job to do, and it must not fail. Yet — nobody worries about that vast underground network of sanitary protection. Few people even think about it. What greater tribute could be paid to a product's dependability?

Of all the materials that are used in the construction of modern homes and cities, none is more essential than Vitrified Clay Pipe. It disappears underground, so it's got to be good. It guards against disease, so it's got to be good. It gets no maintenance, so it's got to be good.

And you know it *is* good, because it is guaranteed for 50 years. It's the only pipe that *never wears out,* and the Clay Pipe Industry is mighty proud of it.

Vitrified CLAY PIPE

CLAY PIPE NEVER WEARS OUT!

NATIONAL CLAY PIPE MANUFACTURERS, INC.

1520 18th St. N.W., Washington 6, D. C.

206 Connally Bldg., Atlanta 3, Ga.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio

C-354-6

Roddiscraft announces a new wood-faced fire door

. . . approved by Underwriters Laboratories

Lightweight Roddiscraft B-Label Fire Doors are available in all wood species to match any flush doors you specify

Now architects and engineers can specify all flush doors from one source — Roddiscraft. With the development of the new B-Label Fire Door, Roddiscraft now offers a complete line of flush doors for all types of applications. For openings in vertical shafts, where a fire barrier is required, specify the new B-Label Fire Door. It has been approved by the Underwriters Laboratories and gives a minimum of at least one-hour fire protection.

The door is currently being produced in all available wood species — in both standard and specified sizes. Widths up to 3½ feet and heights up to 7 feet meet almost all commercial, industrial or institutional requirements. These include stairway and room entrances, shaft and fire escape openings. You'll find wide residential application, too. There is a growing trend in the use of fire doors for entrances to bedrooms, basements and attached garages.

Check the advantages of the new Roddiscraft B-Label Fire Door listed here. Write for complete specifications or call on your nearest Roddis warehouse for details.

Behind Our Doors 46 Years of Development Experience
1 source for all your door requirements
• Solid Core
• Hollow Core
• Fire (B-Label)
• X-Ray

Only Roddiscraft B-Label Fire Doors give you all these quality features

- Non-combustible core of special asbestos compound.
- Faced on both sides with plywood veneer . . . in all available wood species.
- Available in widths up to 3½ feet . . . heights up to 7 feet.
- 20% lighter than conventional solid core doors for lower shipping costs . . . easier handling.
- Warp-free, low sound transmission, low heat transmission.
- Completely stable core — no chance of rattling. Three sections are assembled with tight tongue-and-groove joint.

Roddiscraft

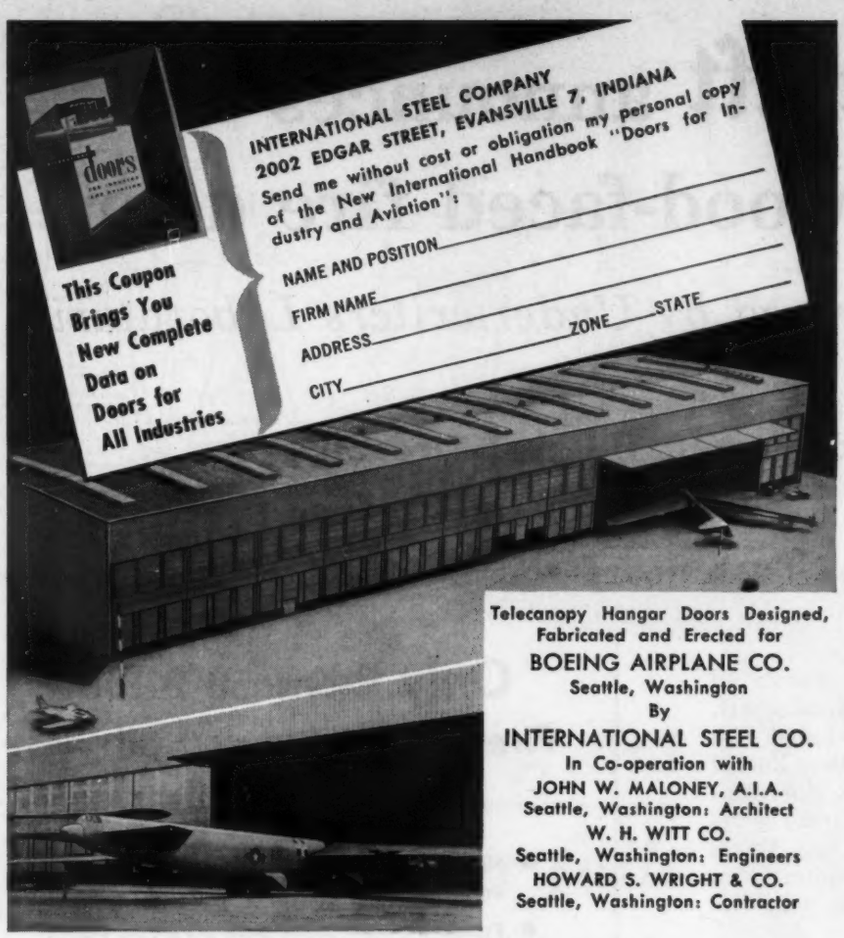
RODDIS PLYWOOD CORPORATION
Marshfield, Wisconsin

warehouses in principal cities

RODDIS PLYWOOD CORPORATION
Marshfield, Wisconsin

Please send me
☐ Specifications of your new B-Label Door
☐ Information on your complete door line

Name .....
Address .....
City ..... State .....


INTERNATIONAL STEEL COMPANY
2002 EDGAR STREET, EVANSVILLE 7, INDIANA
Send me without cost or obligation my personal copy of the New International Handbook "Doors for Industry and Aviation":
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This Coupon Brings You New Complete Data on Doors for All Industries

Telecanopy Hangar Doors Designed, Fabricated and Erected for
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Multi-Ton "Front Door" FOR SEVEN JET GIANTS

THROUGH THESE PORTALS pass the world's most powerful bombers . . . the new jet-powered B-52's . . . built by Boeing for the U.S. Air Force and freighted with importance for the entire free world.

And what an entrance it takes to fit a hangar for these jet giants! Here are 13 telescoping canopy sections, each 60 feet long by 65 feet high, each operated by its own 15 H.P. motor. Here is a total wall-to-wall entrance length of 780 feet, an over-all opening that measures 50,700 square feet — fully opened or closed in less than 2 minutes and free of all vibration in operation.

Here is more than enough door area to blanket a football field . . . stretching the length of almost 3 such fields . . . over a million pounds of single doorway, and longest of its type in the world!

This is not the first installation International has made for Boeing. It was International Steel that helped to engineer — and completely fabricated — the world's largest door for Boeing's newest Wichita, Kansas B-47 flight hangar.

On your next project involving one or many entrances — any type or any size — you are invited to draw freely upon International's wide experience in designing and building doors for industry and business. Consulting our engineers in the preplanning stage can prove equally profitable to you and your clients. Mail the above coupon now for your International handbook on newest industrial and aviation door advances.

INTERNATIONAL SERVICE

2002 EDGAR STREET EVANSVILLE 7, INDIANA

INTERNATIONAL STEEL COMPANY

AIA PRODUCTS

(*Continued from page 252*)

THERMOSTAT HEATERS

• Three new automatic thermostatically controlled heaters have been added to the Fresh'nd-Aire heating line: *Standard Model H553* is a fan-forced heater with tip-over safety switch, air-cooled case, turn-over safety guard and carrying handle. *Deluxe Model H653* offers a combination of both fan-forced convection and infra-red radiant heat. *Model H753*, with pushbutton controls, offers either fan-forced or infra-red radiant heat plus a built-in deodorizer lamp. *Fresh'nd Aire Co., Div. of Cory Corp., 221 No. La Salle St., Chicago 1, Ill.*

CEILING HEATING PANELS

• *Uskon heating panels*, paper-thin sheets of specially compounded, electrically conductive rubber sandwiched between sheets of aluminum foil and plastic, need no radiators, pipes or ducts. They can be glued to the ceiling with a special adhesive and will radiate a uniform heat which can be controlled by thermostats. The panels are made in three standard sizes up to 4 by 6 ft, weigh only 6 oz per sq ft, are rated at 22 watts (75 Btu), and are made for use with 230- or 115-volt systems. *U. S. Rubber Co., Rockefeller Center, New York 20, N. Y.*

AIR CONDITIONERS

• Modine is now marketing four *Airditioner* types designed for operation with new or existing hot-water heating systems. The newest models are the Over-head type for concealed installation and the DeLuxe Ceiling type for exposed installation. The Console type for fully exposed or recessed installation and the Concealed type for out-of-sight installation complete the line. *Modine Mfg. Co., Racine, Wis.*

AIR-CONDITIONER TIMER

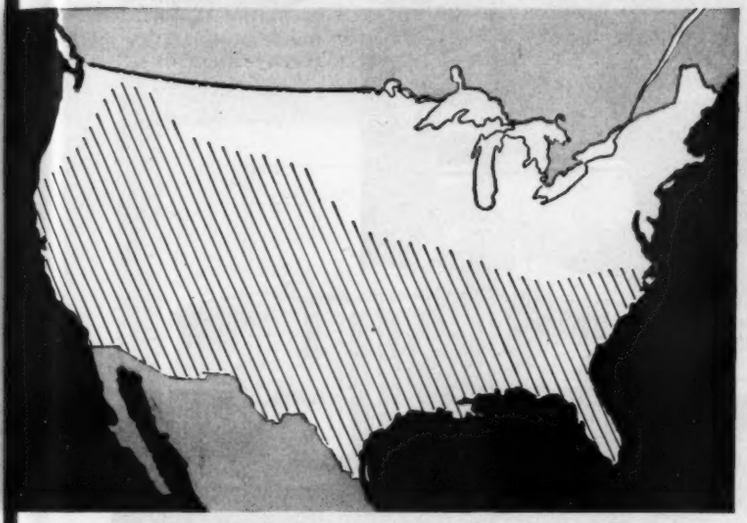
• The *Tork 1919-GSK* attaches to any room air conditioner and converts it into a fully automatic unit without costly installation. A 24-hr dial with an ON and OFF tripper, combined with a calendar wheel, can be regulated to assure automatic performance at scheduled times. Times can be altered to suit changing needs, and the timer has a manual switch for OFF-ON control at off hours which doesn't disturb the master cycle. *Tork Clock Co., Mt. Vernon, N. Y.*

(*Products continued on page 260*)

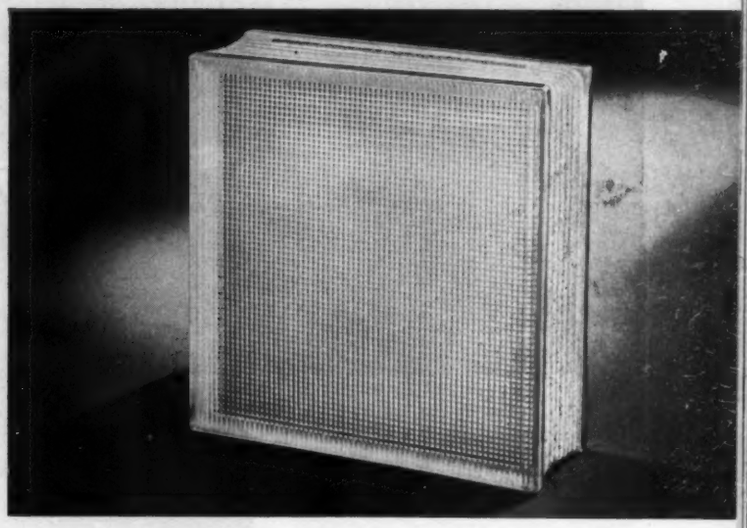
Announcing— 480-F

The Solar Selecting Glass Block

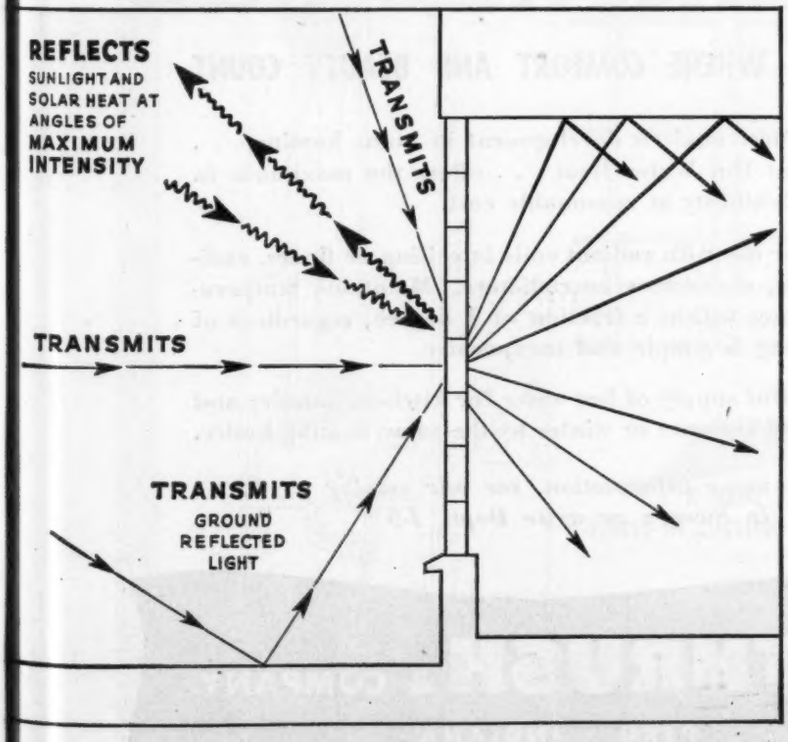
by Owens-Illinois



The problem—Field surveys of daylighting conditions throughout the country have shown a real need for a more precise control of daylight, solar heat and glare in the shaded area shown on the map above.



The product—This new Solar Selecting Glass Block No. 480F provides a solution. It is Owens-Illinois' latest contribution to Daylight Engineering. It gives architects new freedom in the use of daylight.



A LITTLE over a year ago Owens-Illinois announced a development of the Daylighting Laboratory at the University of Michigan—Toplite panels for roofs. The light and heat-controlling properties of this product have now been incorporated in a glass block for side wall use. This new glass block, No. 480F, makes use of prismatic structures which are—efficient reflectors of direct light from the brightest sun positions, efficient transmitters of light from clear and overcast skies, efficient transmitters of ground-reflected light. The diagram illustrates the performance of this new block. It is available in the 12″ square size, No. 480F, and the 8″ square size, No. 380F.

Complete information available

Send for our technical bulletin that gives the details. Just write "No. 480F" on your letterhead and mail to Kimble Glass Company, subsidiary of Owens-Illinois, Dept. AR-9, Box 1035, Toledo 1, Ohio.

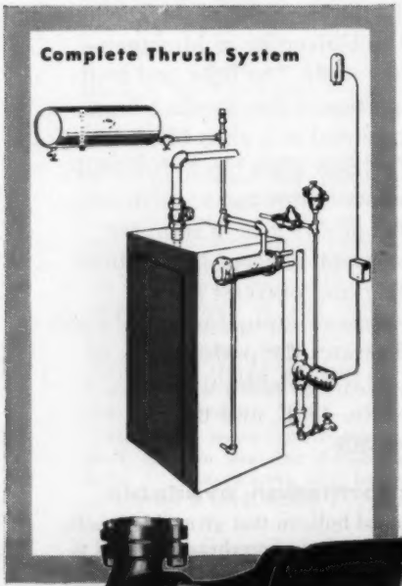
OWENS-ILLINOIS GLASS BLOCK
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO

ANOTHER BEAUTIFUL HOME WITH THRUSH RADIANT HOT WATER HEAT.

Seven zones. Eighteen Rooms including Greenhouse and Hobby Rooms

Specify THRUSH Radiant Hot Water Heat



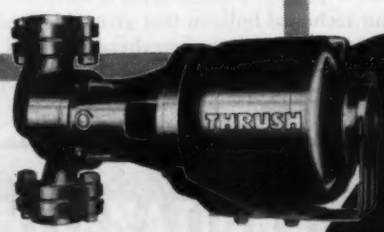
FOR HOMES WHERE COMFORT AND BEAUTY COUNT

THE finest modern development in home heating . . . Thrush Radiant Hot Water Heat . . . offers the maximum in comfort and flexibility at reasonable cost.

Ideal for use with radiant coils in ceiling or floors, radiant baseboards, convectors or radiators. Maintains temperatures in all zones within a fraction of 1 degree, regardless of weather. Zoning is simple and inexpensive.

A plentiful supply of hot water for kitchen, laundry and bath is provided summer or winter by the same heating boiler.

For more information, see our catalog in Sweet's or write Dept. J-9



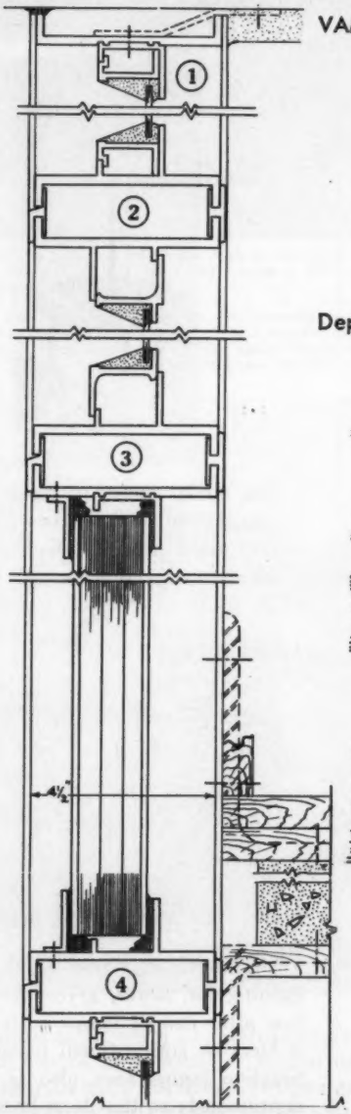
Thrush Water Circulator

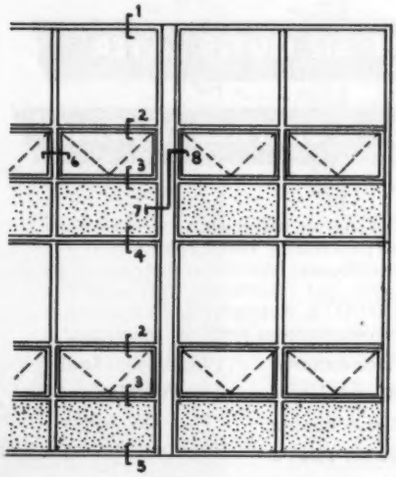
H. A. THRUSH & COMPANY

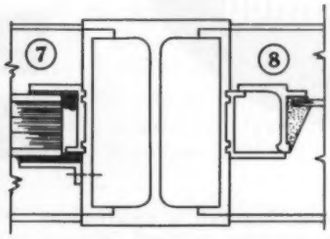
PERU • INDIANA

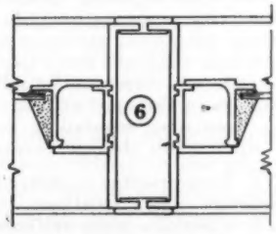
VAMPCO WINDOW WALL

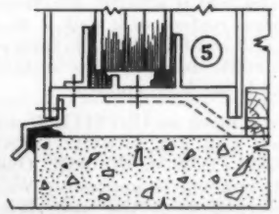
An outstanding example of VAMPCO'S Heavy Ribbon section Window Wall! Charles D. Hannan, the architect, chose this type of construction for the beautiful Catholic Central Faculty Building in Detroit, Michigan. This is only one of the many modern installations of VAMPCO WINDOW WALL under construction at the present time. This type of section can be adapted to your individual design. Our Engineering Department is available to you for further information. VAMPCO Windows are in Sweet's File or you may write Dept. AR-94 for particulars.











VAMPCO

A NAME THAT MEANS THE VERY FINEST IN LIFELONG ALUMINUM WINDOWS

VALLEY METAL PRODUCTS COMPANY

PLAINWELL, MICHIGAN

A SUBSIDIARY OF MUELLER BRASS CO. • PORT HURON, MICHIGAN

(*Lighting continued from page 221*)

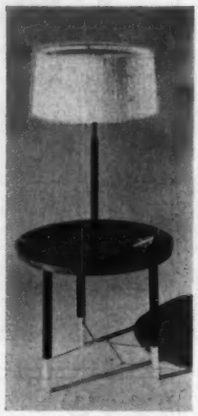
NEW LINES

• Three new lamps have been introduced by Sylvania: A new line of *150-watt reflector lamps* for creating dramatic effects in color are available in four master colors: blue, green, red and yellow, and in two major tints: pink and blue-white. A new *8-ft-long fluorescent lamp* can produce light at the high efficiency of 70 lumens per watt, according to Sylvania engineers. Of a standard cool white color, the lamp has been designed for and will work best in well-ventilated fixtures. A *250-watt color-corrected mercury vapor lamp* is designed principally for installations where lamps must be mounted at heights under 20 ft. *Sylvania Electric Products, Inc., 1740 Broadway, New York 19, N. Y.*

• Two new *GrateLite fixtures* introduced by Guth are a cove and bracket fixture and a large-size GrateLite louver-diffuser. The *cove light* is called a "2-in-1" because it can be mounted either as a cove indirect light or as a direct downlight. Either way it beams 80 per cent of the light either up or down and outward. The *large-size louver-diffuser* is 16 in. wide and 48 in. long, making possible the use of fewer panels in complete ceiling-type installations. *The Edwin F. Guth Co., 2615 Washington Ave., St. Louis 3, Mo.*

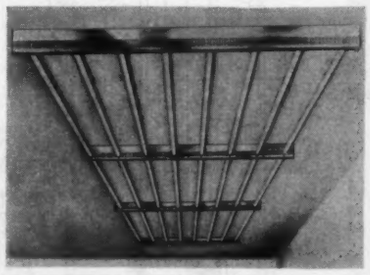
FURNITURE LAMPS

• *Lightolier* offers a number of space-saving furniture lamps made of fruitwood, lacquered metals and warm-toned woods with lampshades of woven grass cloth, two-toned woven translucent strips and matchstick wood strips on white paper. In each design the lamp is fixed at the level which is correct for the table's proportions and for efficient lighting.



The model shown above is mounted on a 23½-in. walnut tray, with the electric cord drawn through one of the three metal-tipped black legs. *Lightolier, 11 E. 36 St., New York, N. Y.*

LAMP ROWS



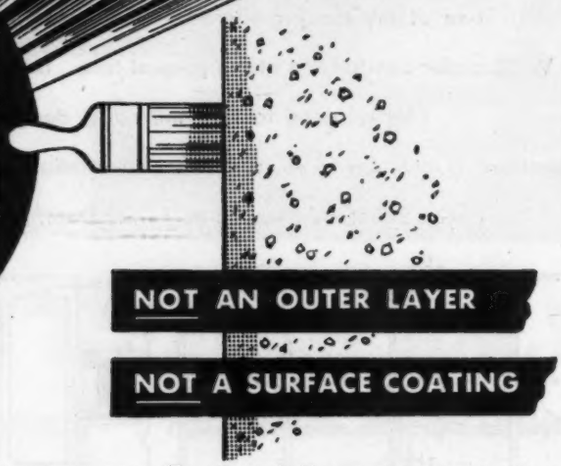
• The *Salesliter*, a new development in lighting for stores, gives the effect of row after row of lamps without lampholders or conventional housings. The Slimline lamps may also be laid out continuously so that long lines of lighting are created. The manufacturer reports that *Salesliter* is easily cleaned and the electrical components are easily serviced without disturbing the installation. *Smithcraft Lighting Division, Chelsea 50, Mass.*

(*Products continued on page 264*)

IRONITE®

WATERPROOFING

the STRUCTURAL INTEGRATION method



A construction wall is no stronger than its weakest segment. Ruined foundations commence their deterioration when dampness, moisture or water penetrate weakened areas. Once breached, a poorly waterproofed wall soon becomes a serious and expensive problem. Contractor reputations are injured when water damage occurs.

IRONITE Waterproofing is different from ordinary water repellents because it is a *metallic* water resistant compound which actually permeates the porous surface of a wall... then *OXIDIZES* and *EXPANDS* to form an indestructible union with the surfaces to which it has been applied.

When you insist on IRONITE Waterproofing you get STRUCTURAL INTEGRATION in the wall. Once applied, removal is impossible without destruction of the underlying concrete or masonry.

For almost half a century, as a means of protecting their reputations for excellence, leading architects, engineers and contractors have specified IRONITE Waterproofing for all types of construction projects including:

Foundations
Basements
Catch Basins
Boiler Pits
Elevator Pits
Concrete Bridges
Swimming Pools
Cable Vaults
Concrete Fences
Molasses Tanks
Hot Water Tanks
Fuel Oil Tanks
Settling Basins
Tunnels
Bank Vaults
Oil Tanks
Water Tanks
Sewage Diposal Plants

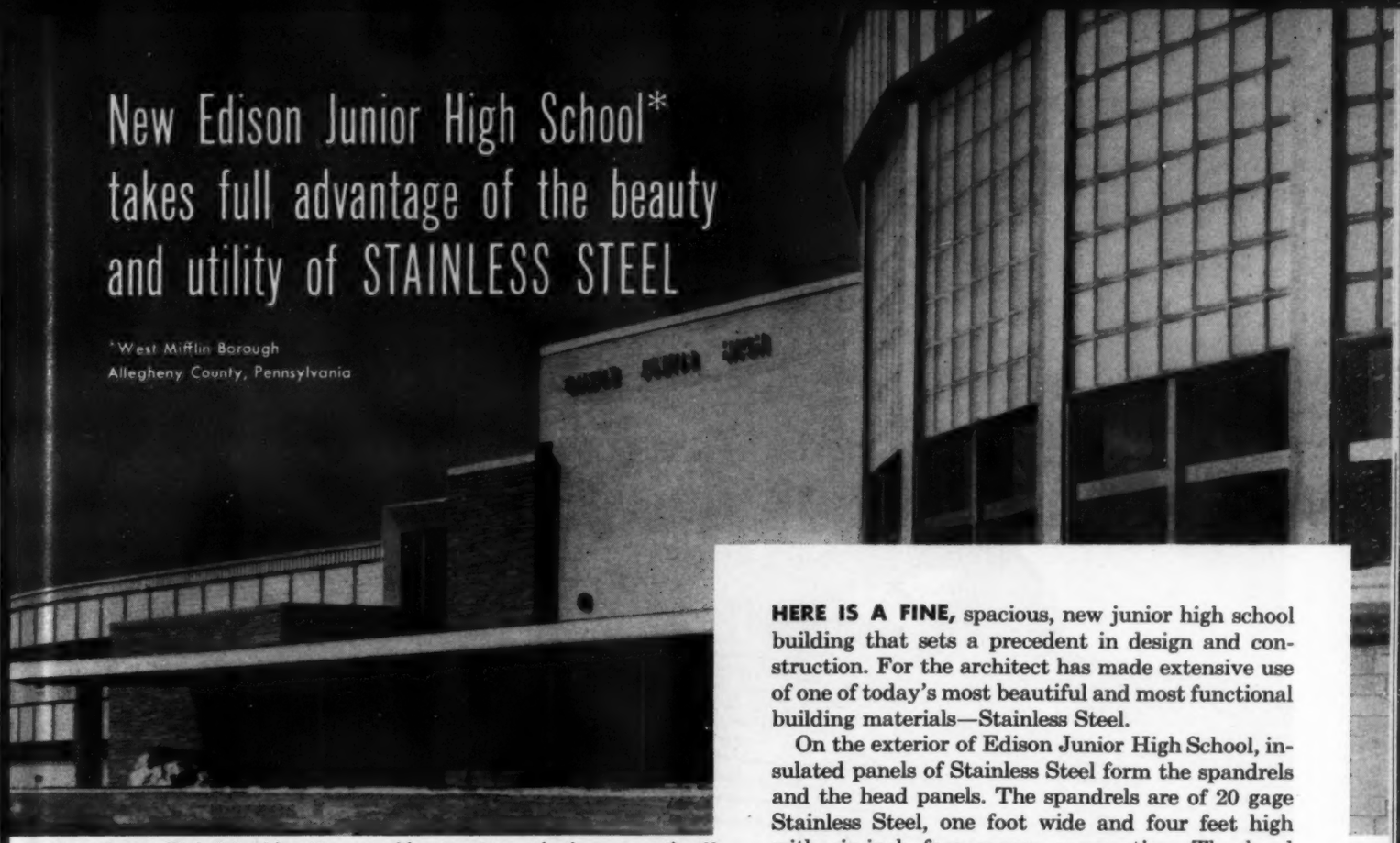
• For further information on IRONITE WATERPROOFING write for your free copy of Bulletin No. 701 to: IRONITE COMPANY, Room 729, 208 South LaSalle Street Building, Chicago 4, Illinois

IRONITE COMPANY

® Registered Trademark

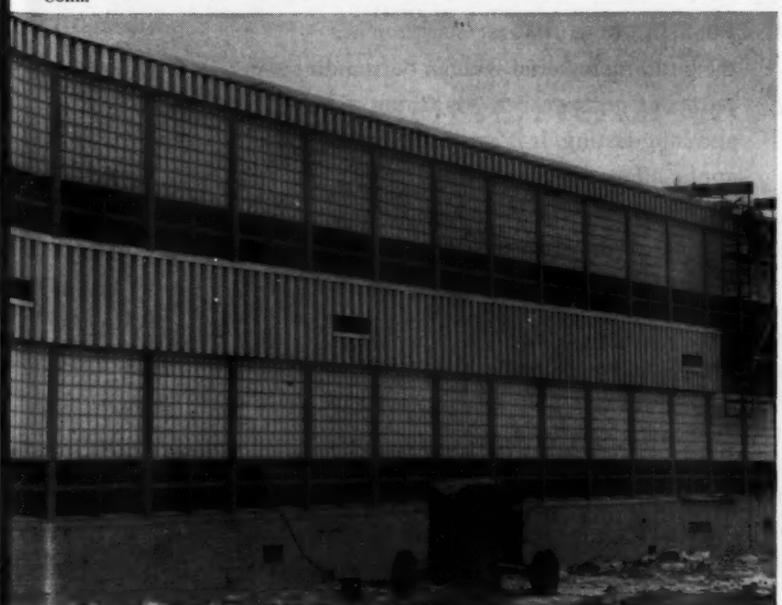
New Edison Junior High School* takes full advantage of the beauty and utility of STAINLESS STEEL

*West Mifflin Borough
Allegheny County, Pennsylvania



Edison Junior High School has 18 rooms with a two-story main classroom section 60 feet by 210 feet. A 200-foot by 120-foot wing houses a 600-seat auditorium, a cafeteria, kitchen, shops and gymnasium.

Architects: Button and McLean, Pittsburgh, Pa. General contractor: Nicholas LeDonne, Clairton, Pa. Stainless Steel panels fabricated and erected by R. C. Mahon Company, Detroit, Mich. Stainless Steel windows by Wilke Metal Products Company, Schofield, Wis. Stainless Steel sills, doors and inside trim fabricated by Trio Industries, Inc., Bridgeport, Conn.



HERE IS A FINE, spacious, new junior high school building that sets a precedent in design and construction. For the architect has made extensive use of one of today's most beautiful and most functional building materials—Stainless Steel.

On the exterior of Edison Junior High School, insulated panels of Stainless Steel form the spandrels and the head panels. The spandrels are of 20 gage Stainless Steel, one foot wide and four feet high with six-inch face square corrugation. The head panels are one foot high. Panels are insulated with one and one-half inches of Fiberglas and attached to the structural framework with clips.

The combination of Stainless with masonry and glass block makes an extremely attractive building. But the benefit of Stainless panel construction doesn't stop there. Construction with the panels was fast and went forward in all types of weather. More complete utilization of floor space was possible through this curtain-wall type construction. Maintenance on the Stainless Steel will be negligible and life will be long.

These panels are extremely efficient from a heating standpoint. They have a low rate of thermal transmission (or "U" factor).

Stainless Steel also was used in this school for sills, mullions, windows, door canopies and trim, blackboard and tackboard frames, doors and door frames, column covers and other interior trim.

If you have a new school in the planning stage, now is the time to think about Stainless Steel and its many benefits. And think in terms of USS Stainless Steel. For more information on Stainless Steel panel construction, mail the coupon below. If you like, we will have one of our representatives call.

United States Steel Corporation
Room 4430, 525 William Penn Place
Pittsburgh 30, Pa.

- ☐ Please send me literature on Stainless Steel panel construction.
- ☐ Please arrange to have fabricators of Stainless Steel wall panels send me literature on their particular type of construction.

Name.....Title.....

Address.....

City.....State.....

United States Steel produces only the Stainless Steel from which panels of this type are made; the panels themselves are fabricated by our customers.

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USS STAINLESS STEEL

SHEETS • STRIP • PLATES • BARS • BILLETS — PIPE • TUBES • WIRE • SPECIAL SECTIONS

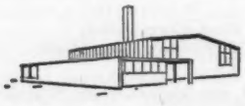
UNITED STATES STEEL

AMERICA'S MOST VERSATILE BUILDING MATERIAL

Roof sheathing of West Coast lumber—the building material with an outstanding record of performance—is strong, rigid and long-lasting. It is easy to handle, easy to apply, offers *real* nail-holding power. West Coast lumber is time-tested in conventional construction. And, as always, it remains the natural choice of the day's most creative designers.

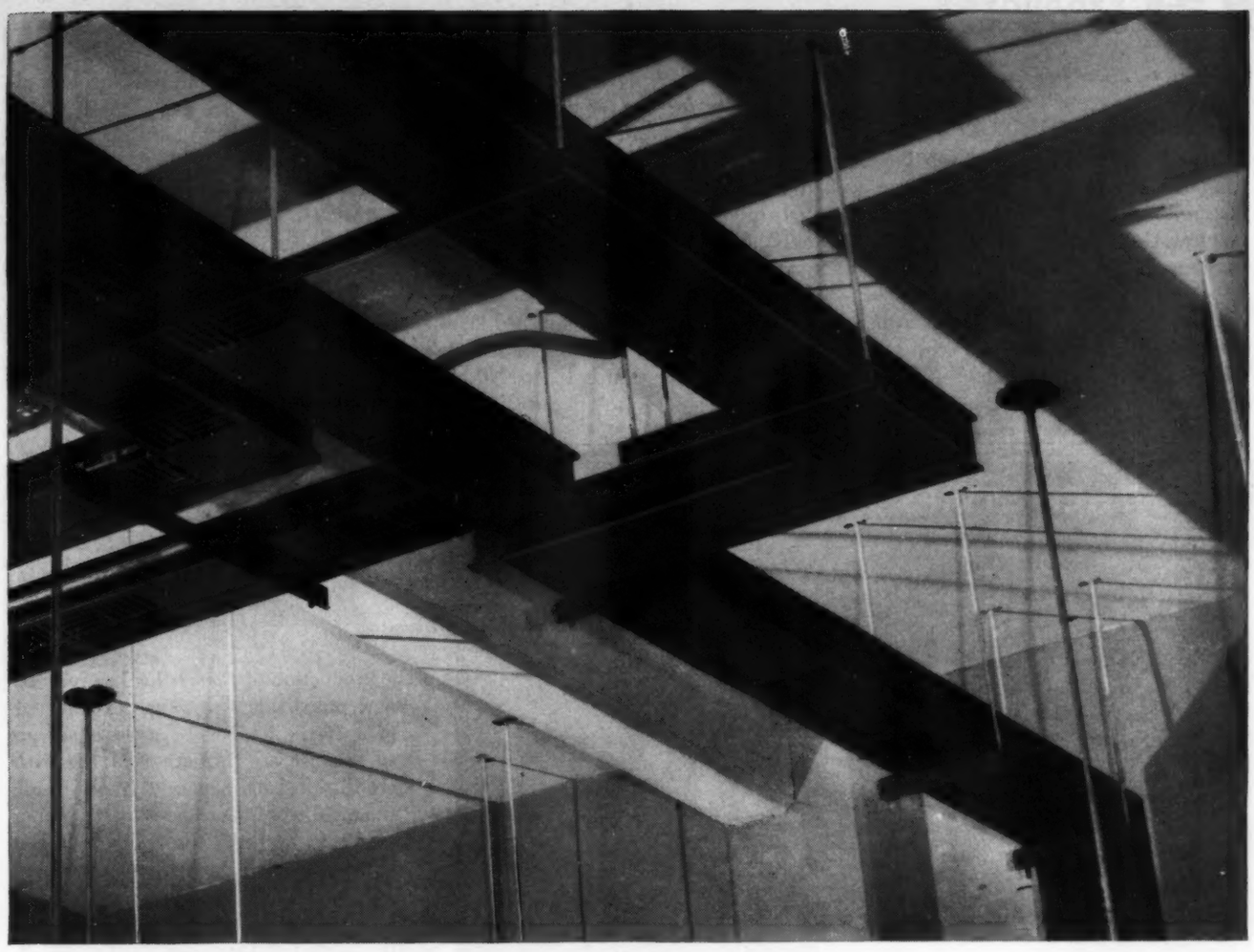
For dependable lumber, specify the West Coast species...Douglas Fir, West Coast Hemlock, Western Red Cedar and Sitka Spruce.

Send for folder describing free literature available for your reference files.
West Coast Lumbermen's Assn.,
1410 S. W. Morrison St., Portland 5, Oregon



WEST COAST LUMBER Douglas Fir • West Coast Hemlock
Western Red Cedar • Sitka Spruce

whatever the job, consider WOOD FIRST!



New Westinghouse Aluminum bus duct

...LIGHT WEIGHT FOR SIMPLIFIED BUILDING DESIGN

FLEXIBLE...MORE POWER IN LESS SPACE

Tight building layouts and lightweight structural members cause no problem for planning power distribution with new Westinghouse Aluminum Bus Duct. Incorporating all the conveniences and design values of Westinghouse Bus Duct engineering, new aluminum bus duct is *one-third* lighter . . . permitting greater freedom in structural design.

Up to 5000 amperes, Westinghouse Aluminum Bus Duct has greater current carrying capacity, pound for pound, than cable or conduit. It is prefabricated in standard sections . . . installs easily and quickly in any layout, around any obstruction. It fits comfortably into elevator shafts and wireways. When exposed, its modern appearance blends well with interior design.

For detailed information, write for B-6385, Westinghouse Electric Corp., 3 Gateway Center, P. O. Box 868, Pittsburgh 30, Pa.

J-94024

YOU CAN BE SURE...IF IT'S Westinghouse

(*Products continued from page 260*)

ALUMILITE FINISH

• Store fronts and entrances can have Alumilite finishes now, claim the manufacturers of *Gold Lite*, Alcoa's Architectural Gold Process. A hard, oxide coating which, it is said, does not discolor or tarnish under normal atmospheric conditions, Gold Lite can be maintained by washing with soap and water. *Alumiline Corp., Dunnell Lane, Pawtucket, R. I.*

CONCRETE MASONRY UNITS

• *Marblox* are conventional concrete masonry units on one or both surfaces of which a pure mineral oxide pigment is combined with a dense concrete mix to provide a smooth colorful texture. Body and face are formed simultaneously and cured as a monolithic all-concrete unit that is fireproof, rotproof and verminproof. According to the manufacturer, a complete finished load-bearing wall can be produced in a single masonry operation. *Marble Face Blocks Inc., Michigan Ave., Kenilworth, N. J.*

COLORED CEMENT

• Cement with a variety of colors already mixed at the factory is available now in 25- and 50-lb bags. Exposure to sunlight and weather, it's claimed, won't cause the colors to fade, and the pigments won't react chemically to weaken the completed construction job. *Murray-Williams Color & Chemical Co., Maplewood, N. J.*

BUILDING TILE

• Production of *Roman tile* has reached new proportions with the development of a 36-tile mold. The mold is set up to produce six "squares" of tile with six tiles in each square. Flanges inside the mold score the squares at the proper points so that the tiles can be broken out accurately. Production approaches 144 12-in.-high tiles per minute. The aggregate can be colored to suit the producer. *Columbia Machine Co., 107 S. Grand Ave., Vancouver, Wash.*

METAL SOUND PANELS

• *Corrulone*, a corrugated, enameled, perforated metal panel system provides high sound absorption, incombustible construction and flexibility of lighting arrangement. Accessibility behind the tiles is possible by sliding any one of the 24-in.-square or 24- by 48-in. corrugated panels forward or backward. Above the panels a specially designed mineral wool pad contributes to the high sound absorption obtained. *U. S. Gypsum Co., Dept. 136, 300 W. Adams St., Chicago, Ill.*

(*Continued on page 268*)

WEATHER STRIPS FOR SLIDING DOORS

For Pleasanter Living

SLIDING DOORS...

WEATHER-PROTECTED BY "ACCURATE"

MODERN homes invite modern ways of living. And nothing could be more inviting than to bring the great outdoors into your living room or porch. Yes, SLIDING DOORS are today's *must*. All over America, leading architects are specifying SLIDING DOORS equipped with "Accurate" Metal Weather Strip Saddles, Sheaves and other fittings for smooth, quiet operation.

TRADE MARK ACCURATE REG. U.S. PAT. OFF.

For doors and windows of all types, "Accurate" Metal Weather Strip is unsurpassed. Write for working drawings, or if you prefer

ASK FOR ILLUSTRATED FOLDER

ACCURATE METAL WEATHER STRIP CO., Inc.

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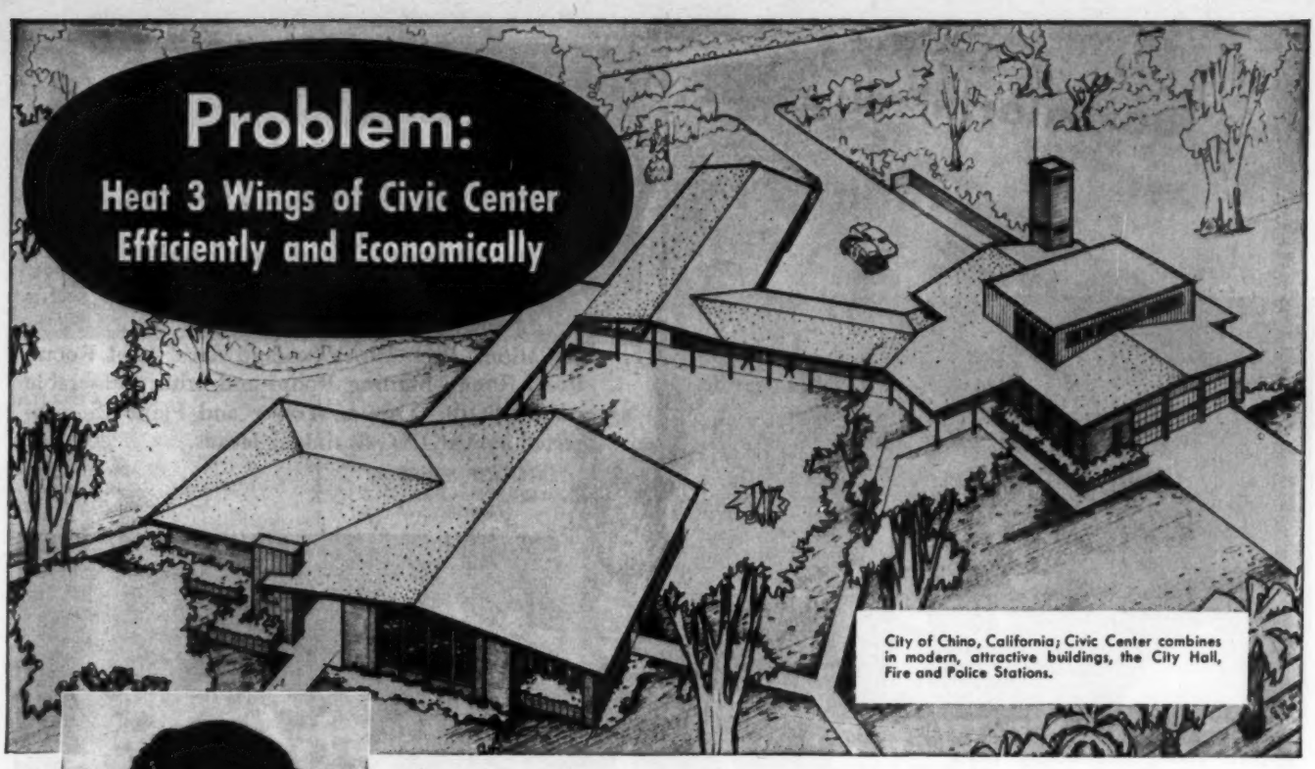

City of Chino, California; Civic Center combines in modern, attractive buildings, the City Hall, Fire and Police Stations.

Stanley Clark Meston, A.I.A. Fontana, California architect for the recently constructed Chino Civic Center.

Architect Stanley Meston, A.I.A. specified

®Janitrol UNIT HEATERS

He says "A single central heating system with duct work to the 3 separate wings would have been more expensive to install and more costly in the use of fuel."

Building budget dollars can often buy more if careful consideration is given to the heating layout and equipment specifications.

The application of Janitrol Gas-Fired Unit Heaters and Winter Air Conditioners in the Civic Center above is not unusual. Similar Janitrol installations are saving money on the original cost and operating expenses in schools, shopping centers, new and modernized commerical and industrial buildings.

When it comes to the selection of equipment, again your careful consideration will reveal why Janitrol has the great preference among leading architects.

Design wise, Janitrol is far advanced in performance, dependability and economical, quiet operation. Your comparison of Janitrol's construction features will prove this.

PROVEN PERFORMANCE THAT'S UNMATCHED

With more than a million exclusive design Janitrol heat exchangers installed since 1950 . . . less than 1/4 of 1% have been replaced for any cause.

Write for A.I.A. Files on Commercial and Industrial Gas Heating and information on the most durable unit heater built.

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ALSO MAKERS OF *Surface* INDUSTRIAL FURNACES *Kathabar* HUMIDITY CONDITIONING

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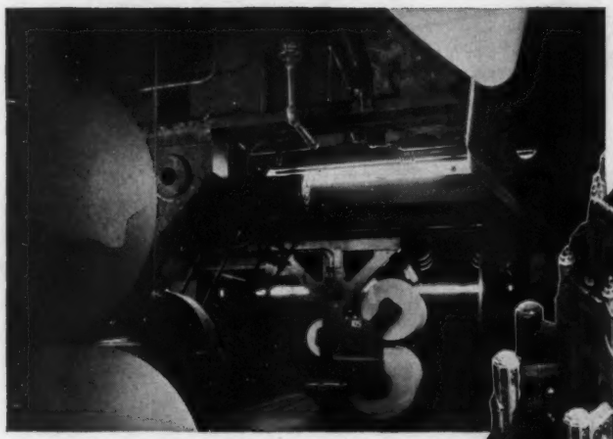
COLUMBUS 16, OHIO · ***In Canada:*** **Alvar Simpson Ltd., Toronto, Ont.**

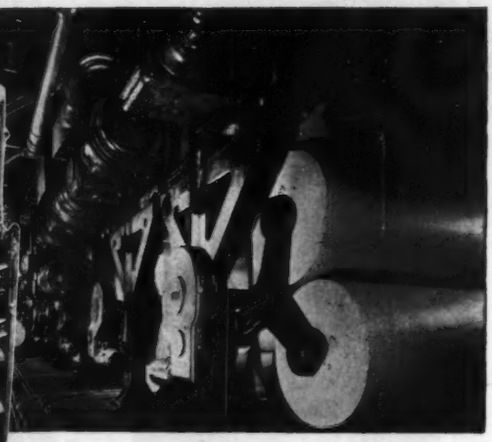
no "four alarm" fires at the CHICAGO TRIBUNE

thanks to VIKING SPRINKLER HEADS

The Chicago Tribune is insured against "four alarm" fires with a Viking Automatic Sprinkler installation. Each Paper Storage Area, Reel Room, Press Room, Mailing Room and other vulnerable points in the Tribune Tower and Plant are protected by VIKING Sprinkler Heads..



Expert Viking engineering beats the problem of narrow space between ceilings, machinery and equipment with a highly efficient sprinkler installation.



The entire Sprinkler System was prefabricated and installed by Viking so it would not interfere with high speed Reel and Press Room operations.

This efficient protection was proved one day, when a molten piece of metal, from welding apparatus being used by an outside contractor, fell into the paper in a raceway between the paper reels. Within seconds a fire started. One VIKING Sprinkler opened and immediately extinguished the blaze. The presses were running again within ten minutes and a possible "four alarm" fire was stopped before it started. Without the VIKING protection it is probable that the entire Press and Reel Rooms might have been out of service for an extensive period of time, and the lower structure of the Tribune Building could have been seriously damaged.

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You will find them in accord with today's trend for more day light in the class room, since the MARMET wall of windows, or some times referred to as curtain wall made of aluminum is especially designed for school rooms. Made to receive any type of single or insulated glass, these windows are "factory fit," unglazed and ready for installation. They are permanent and require minimum maintenance. No other type of construction costs less or is more attractive. Custom built to your requirements and MARMET "satinized" for beauty.

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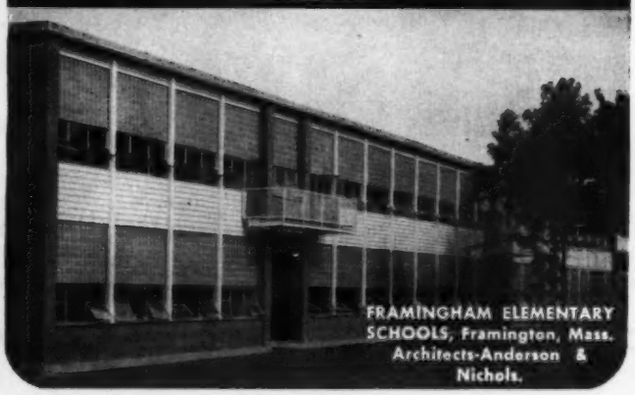

FRAMINGHAM ELEMENTARY SCHOOLS, Framington, Mass. Architects-Anderson & Nichols.

Door coils above the opening, completely out of the way.

Clears the entire opening — jamb to jamb, floor to lintel.

Opened door stays out of reach of wind or vehicles.

All surrounding floor and wall space is always fully usable.

Rugged all-steel curtain repels wind, fire, theft, vandalism.

Heavily galvanized curtain gives lasting resistance to elements.

(1.25 ounces of pure zinc per square foot of metal, as per ASTM standards.) Kinnear Paint Bond — a hot phosphate immersion assures thorough, lasting paint grip.

Smooth, easy coiling upward action saves time and labor.

Ideal for motor operation; remote control switches if desired.

Any size; quickly, easily installed in old or new building.

Kinnear Steel Rolling Doors

The rugged Kinnear Motor Operator, with push-button control switch.

Write today for full details.

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Saving Ways in Doorways
KINNEAR ROLLING DOORS

1742 Yosemite Avenue
San Francisco 24, Calif.

AIA PRODUCTS

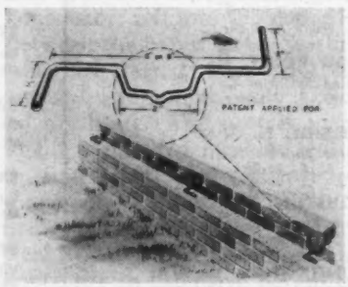
(*Continued from page 264*)

STAIRS

• *The Standard Metal Products Co.* builds stairs, working from the architect's general drawings up to the final installation. The first step is the flame-cutting of the steel channels to the length of a single uninterrupted run. Next the short lengths of small steel angles which will carry the treads and risers are tack-welded to the channels and the connections for building floor construction are attached, the railings fastened and the carrier angles welded. The channels are then shipped to the building site, where they are installed and the risers and treads are bolted or welded to the channels. *The Standard Metal Products Co., Braddock, Pa.*

• Globe *Safety Grip-Strut* has proved doubly effective in the Climax Molybdenum Co. plant at Climax, Colo., according to company engineers. Its open grating provides an anti-skid surface in all directions when covered with molybdenum sulfide, the extremely slippery material being processed, and permits plant operators to recover expensive molybdenum sulfide that escapes onto the floor. *The Globe Co., 4000 S. Princeton Ave., Chicago 9, Ill.*

CAVITY WALL TIE

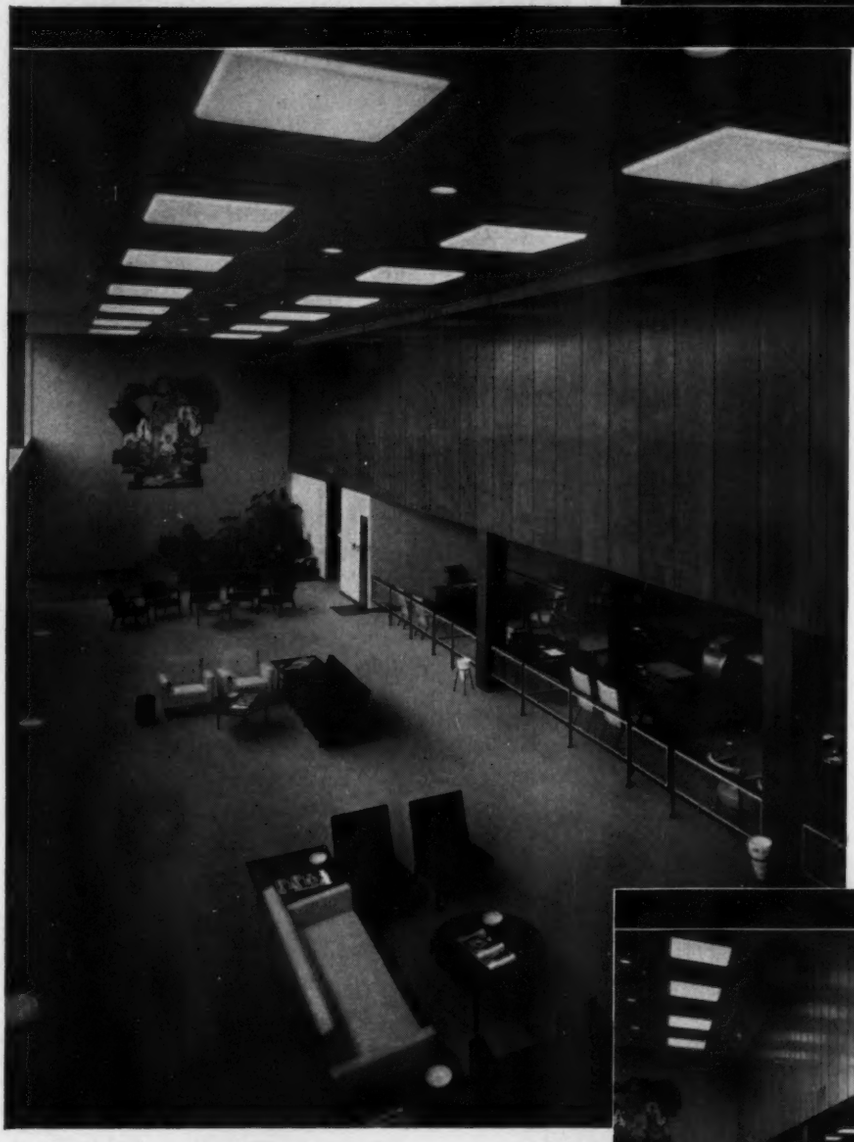


• The *Rock-Fast Cavity Wall Tie* spreads and ties parallel masonry walls much the same as a spreader-tie works on concrete forms. The 2-in. spacer section has been designed with a downward dip at the midpoint, a moisture drip feature which protects the tie from corrosive action of water, lime and mortar. A heavy-gauge steel, 36-in.-long trough is also available to hang between the walls during bricklaying to catch extra mortar and prevent formation of bridges. *Conver Steel & Wire Corp., 600 East 132nd St., New York 54, N. Y.*

(*Continued on page 270*)

There are many "firsts"

in this Dallas bank



not the least of which are

Wakefield Beta-Plex recessed luminaires which distribute uniform light throughout an interior made warm and friendly by the functional use of masonry, metal, wood, glass, fabric and contemporary furniture.

WAKEFIELD

For the spacious, gracious two-level lobby of this contemporary building the architects used 4'x4' Plexiglas diffusers for the upper ceiling, 2'x2' for the lower.

BETA-PLEX

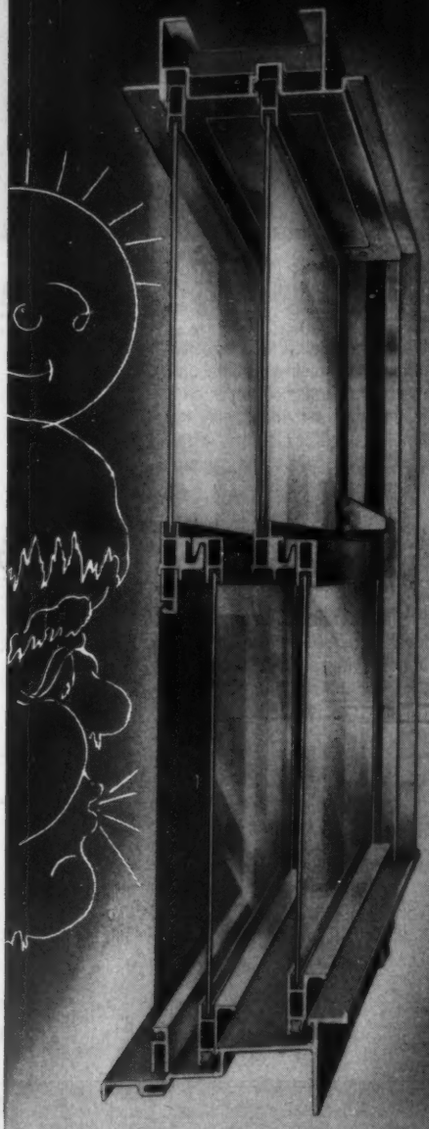
For more information and a folder on Beta-Plex, write The F.W. Wakefield Brass Company, Vermilion, Ohio. In Canada, Wakefield Lighting Limited, London, Ontario.

LUMINAIRES

Oak Cliff Savings Building, Dallas, Texas
Architects: Prinz and Brooks, A.I.A.

Wakefield OVER-ALL LIGHTING

This Window STOPS WIND



Testing Laboratories report extruded aluminum Fleetlite most airtight of all operating windows.

DUST

Mohair weatherstripping and snug interlocking double sash seal out dust.

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Double windows protect hospitals, dormitories, offices, hotels and other buildings from outside noise.

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Air space between outside and inside sash insulates against heat, makes air conditioning practical.

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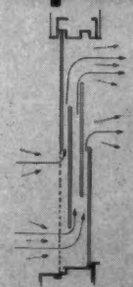
Complete weatherstripping and double sash blocks cold, saves fuel costs.

Yet Opens Instantly – Easily

All Sash are cleaned from the inside. No Maintenance, Nothing to Store.



Sash adjustable for indirect screened ventilation

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Fleetlite
AMERICA'S Finest WINDOW

FLEET OF AMERICA, INC., 407 Dun Building, Buffalo 2, New York

A|E PRODUCTS

(*Continued from page 268*)

PLEXIGLAS SHEETS

• *Plexiglas extruded sheets* are expected by the manufacturer to open up new fields of application where there has been need for thin-gauge, lower-price material with the general properties of cast acrylic plastic. Suitable for both outdoor and indoor applications, the extruded sheets are available in thicknesses of 0.06, 0.08, 0.10 and 0.125 in., in widths of 36 and 48 in. and in lengths from 48 to 96 in. *Rohm & Haas Co., Philadelphia 5, Pa.*

MECHANICAL JIG FOR WALLS

• The *Module Erector*, a mechanical jig to panelize house wall sections, enables a whole side of a house to be panelized in one operation, reduces on-site construction. A house can be subsided, single-sided or double-sided and, according to the manufacturer, regardless of the siding there will be no outward evidence of where the panels join. *The Module Erector Co., 1522 N. Dixie Dr., Dayton 4, Ohio.*

PLYWOOD PANELS

• *Armorply* panels are Weldwood plywood in a variety of thicknesses to which metal has been permanently bonded on either or both sides. Four different types of *Armorply panels* have been used on the Newfield Elementary School in Connecticut. Dividing partition panels have either a porcelain chalk-board surface or a zinc-coated steel face. Panels covering end walls are backed in aluminum. Fascia panels are backed with aluminum and faced with 18-gauge porcelain enamel to the architect's color selection. *U. S. Plywood Corp., 55 West 44th St., New York 36, N. Y.*

CERAMIC CONCRETE BLOCK

• *Glasface*, a ceramic-glazed concrete block, represents, claims the manufacturer, the first time that a glassy finish has been successfully applied to a concrete block without impairing the structural strength of the concrete and without prohibitive cost. Although tests have shown the finish to be best applicable to the lightweight aggregate type of block, it can be applied by the Ferro process to the many expanded clay, shale or blast furnace slag-type blocks in a complete range of colors as well as various types of finishes. *Ferro Corp., Cleveland, Ohio.*

Choose the floor that's NATURALLY beautiful!

BRUCE STRIP

Hardwood Floor

Prefinished . . . or for job-finishing

You give owners more for their money when you specify beautiful, durable Bruce Strip Floors.

They get top quality flooring that's properly seasoned, precision manufactured, and always "up to grade." An extra bonus is the pride of ownership and higher value of the home with a Bruce Strip Hardwood Floor.

For added beauty, durability and economy, specify that the flooring be *prefinished* with the Bruce "Scratch Test" Finish that outwears surface finishes 3 to 1. The cost of a Prefinished Bruce Strip Floor is usually less than for an unfinished floor of the same grade plus on-the-job finishing. Write us for information or see your Sweet's File.

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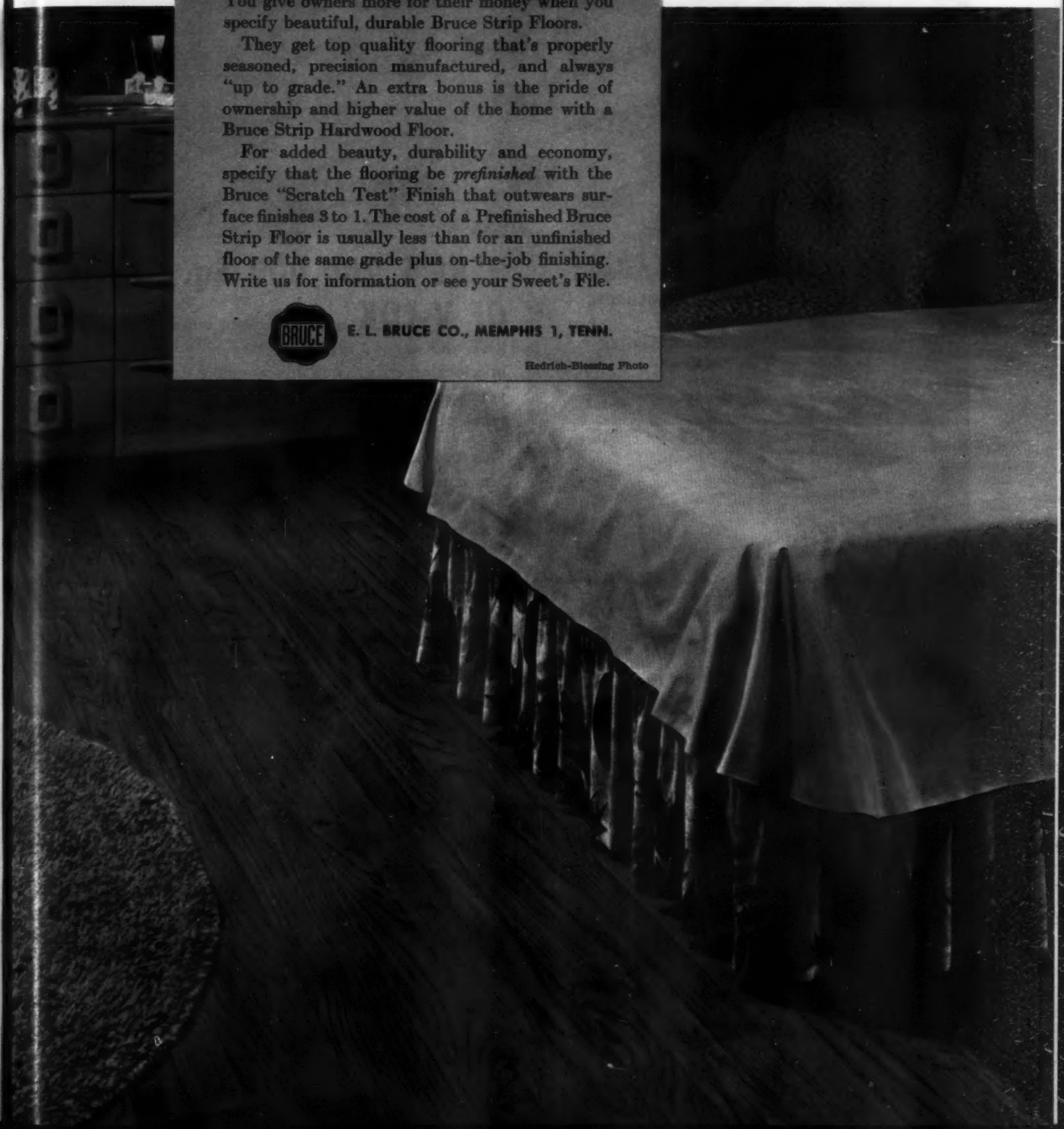

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with that clean engineered look, the rugged structural assembly of the interlocking frame and the erection time advantage you have with V-LOK over all other types of steel framing.

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CANTON 1, OHIO

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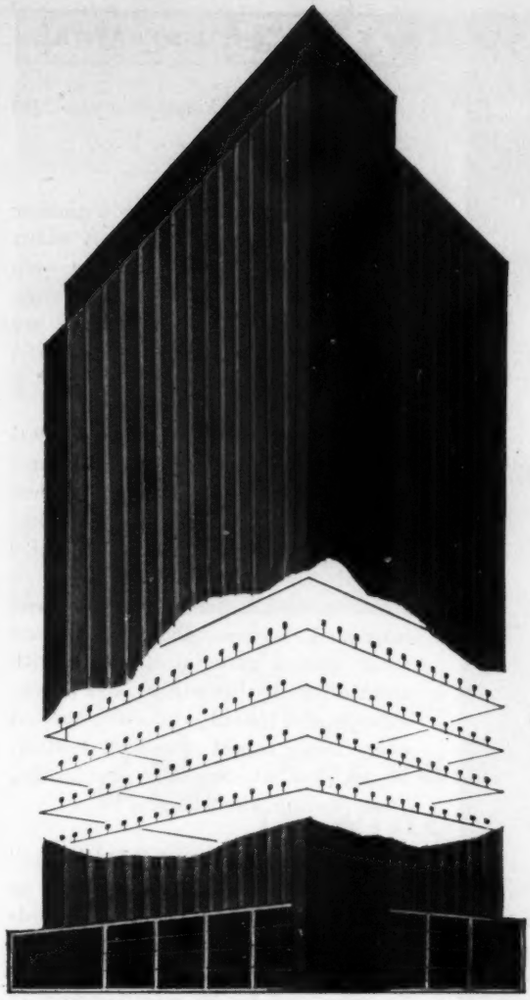
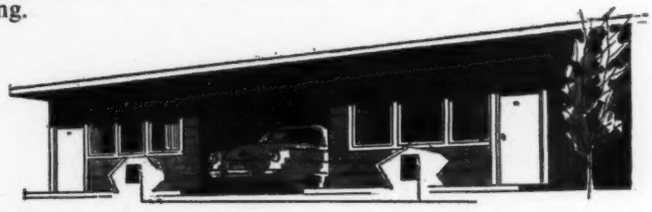


Modulated Heat with Thermostat in Every Room

Every room in a building is an individual zone, with its own thermostat. Every room is heated with filtered warm air, continuously circulated by a compact, recessed wall unit. Sets a new standard of comfort and heating economy for every type and size of residential, institutional and commercial building.



SelecTemp Highlights

THERMOSTAT IN EACH ROOM. Temperatures can be varied in every room to fit the "activity plan" and personal preference of the occupants.

MODULATED HEAT. Air circulation is continuous. Both temperature and volume of air is automatically modulated, as required to offset heat loss from room.

FILTERED, CIRCULATED AIR. Individual room air circulation prevents transmission of odors or bacteria from other rooms. Air is cleaned by a spun glass filter in each room unit. Filtered outside air can be introduced if desired.

BOILER LOCATION. Does not require centrally located heating plant. Boiler can be placed in any desired location, with proper distribution of heat to every room.

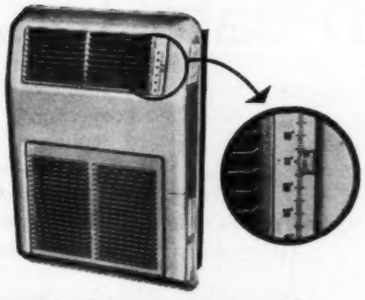
LOW POWER COST. No electricity required to operate circulating fans. Nonelectric thermostats.

LOW INITIAL COST. No other system can be so easily installed in either new or old construction. Small soft copper tubing (¼ inch I.D.) carries steam to individual room heater units. Return lines are ⅜ inch. Tremendous savings in installation costs.

LOW FUEL COST. Temperature easily reduced in unused rooms. Eliminates overheating.

AUTOMATICALLY BALANCED. No special adjustments of dampers, valves or orifices required to balance heating system. Each unit continuously regulates heat needed for each room. Automatically compensates for external heat sources such as fireplace or solar heat, without affecting temperatures of other rooms.

FOR LARGE OR SMALL BUILDINGS



Individual room control with continuous modulated heat

With SelecTemp heating, every room in the building is an *individual zone*, with its own thermostat. Low pressure steam, supplied to recessed wall units through small flexible copper tubing, provides heat and power for the circulating fan. Thermostats are nonelectric and require no wiring.

Exact, constant temperatures

Each room thermostat may be set at any temperature from 40 to 90 degrees. Heat in each room is accurately maintained at the temperature selected. The thermostat detects any change in temperature and regulates both the speed of the circulating fan and the steam supply to exactly meet heating requirements. SelecTemp thus eliminates ordinary on-and-off cycling and "cold 70" stratification. It constantly modulates from 1/20th of capacity to full capacity, supplying just the amount of heat needed. SelecTemp compensates automatically for variations due to changes in outdoor temperature, and in velocity and direction of the wind. It compensates for heat gains from the sun's heat, fireplaces, cooking ovens and body radiation.

Low installation and operating cost

The various parts of the selecTemp system are engineered for rapid economical installation without time wasting special provisions. SelecTemp units are delivered assembled in steel enclosures for mounting in wall stud spaces or wall openings. No electric power required for operation of circulating fans or thermostats—an important saving. Fuel savings result from elimination of wasteful overheating and from lower temperatures in unoccupied rooms. Small steam lines greatly reduce heat transmission losses.

SelecTemp
TRADE MARK
PRODUCT OF IRON FIREMAN

Send for full information

IRON FIREMAN MANUFACTURING CO.
3236 W. 106th Street, Cleveland 11, Ohio.

Please send literature on Iron Fireman SelecTemp heating.

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Address _____

City _____ State _____

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Easy to care for...

Architects know that maintenance cost is one of the major considerations in specifying a floor covering.

Dense, yet resilient, floors of Wright Rubber Tile bring savings in maintenance that quickly offset the initial savings of a "cheaper" floor. Dirt won't penetrate Wright's non-porous surface. Mopping and occasional waxing will retain its new-look luster indefinitely.

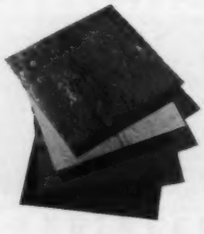
Because of these characteristics, Wright Rubber Tile is particularly appropriate in large, heavy-traffic jobs, where maintenance costs might otherwise become excessive.

Pictured above is Battelstein's fashionable River Oaks Store in Houston. Wright Rubber Tile was used in all principal sales floor areas.

WRIGHT MANUFACTURING CO.
5205 Post Oak Road, Houston, Texas

WRIGHTEX
WRIGHTFLOR
VINYL TILE
ECONOTILE

see our catalog in ARCHITECTURAL FILE or write for copy



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4755

A E LITERATURE

(*Continued from page 218*)

HEATING

• A *Dravo* file folder encloses a number of case studies of buildings in which heating was a problem. Results such as savings in installation and operating costs and reduction in heat losses are shown. *Dravo Corp., Dravo Bldg., Fifth and Liberty Ave., Pittsburgh 22, Pa.**

• *Radiant Heating, Radiant Cooling, 1954* is a condensed report of the proceedings of a series of six Conferences on Radiant Heating sponsored last fall by the School of Architecture at Pratt Institute for a number of architects, engineers, contractors, manufacturers, students and interested laymen. Paraphrased and some quoted material, together with summations by the editor, offer a clear exposition of the subjects, which covered every major aspect of radiant heating. 40 pp, illus, $1. *School of Architecture, Pratt Institute, Brooklyn, N. Y.*

• The Sixth Edition of "I-B-R Ratings" contains all I-B-R ratings in effect on April 1, 1954, for boilers and baseboards of all types currently being produced. Ratings are included for 25 boiler manufacturers and for 26 manufacturers of baseboards. 75¢. *The Institute of Boiler and Radiator Manufacturers, 60 East 42nd St., New York 17, N. Y.*

FANS

• *Valley Fans for Home & Industry* presents specifications, dimensions and installation drawings of nine models of Valley fans. 4 pp, illus. *Valley Fan Mfg. Co., Fort Valley, Ga.*

FOOD HANDLING EQUIPMENT

• *Crescent Food Handling Equipment* is a file folder containing catalog sheets of specifications, recommended uses, dimensions and construction of food handling equipment. *Crescent Metal Products, Inc., 18901 St. Clair Ave., Cleveland 10, Ohio.*

GENERATORS

• *Safety 15–20 DC Generators* covers design features, dimensional drawings, maintenance and specifications for these lightweight generators for marine and industrial applications. 4 pp, illus. *The Safety Car Heating and Lighting Co., Inc., Marine and Commercial Div., P.O. Box 904, New Haven 4, Conn.*

(*Continued on page 278*)

No window "monotony" here! In this house, Silentite double-hung units, casements and picture window form an attractive combination. The Silentite "family" offers the right window for every purpose.

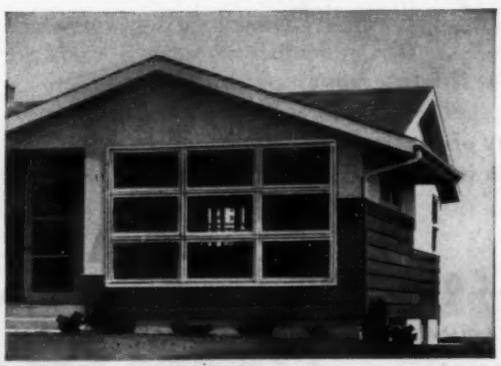
For variety in windows there's nothing like a "family"

From window walls to basement sash, there's window *variety* for every architectural need in the Curtis Silentite "family." That means a single, dependable source for all your window requirements. You can give home owners exclusive window features and advantages, developed through Curtis research—plus the assurance that materials and workmanship of every Curtis Silentite window are *fully guaranteed.*

So take your choice of the Silentite family—double-hung units—casements—awning windows—panel windows—convertible windows—and many others. With any, or all, you'll achieve the kind of customer satisfaction that sells homes today.

These smart, single-light Silentite casements are truly weather-tight. The Curtis adjuster provides fifteen times the opening force of the ordinary lever type. Screens and insulating glass furnished. Available in several sash styles.

Available in twelve sizes, Silentite awning windows provide controlled ventilation—with positive weather-tightness—in any climate. Adaptable to any type of wall construction, Silentite awning windows come completely factory assembled and carton-packed for easy installation.



It's a casement—awning...or hopper-type window...as you choose—this new Curtis Convertible! More than a thousand window combinations are possible with this versatile window that is always "right side up."

1865 CURTIS WOODWORK
SILENTITE PRE-FIT
the 'insulated' window

Curtis makes a complete line of architectural woodwork and birch kitchen cabinets for homes of all types. Make your next home "all Curtis."

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Clinton, Iowa

Please send literature on the Curtis line of Silentite windows.

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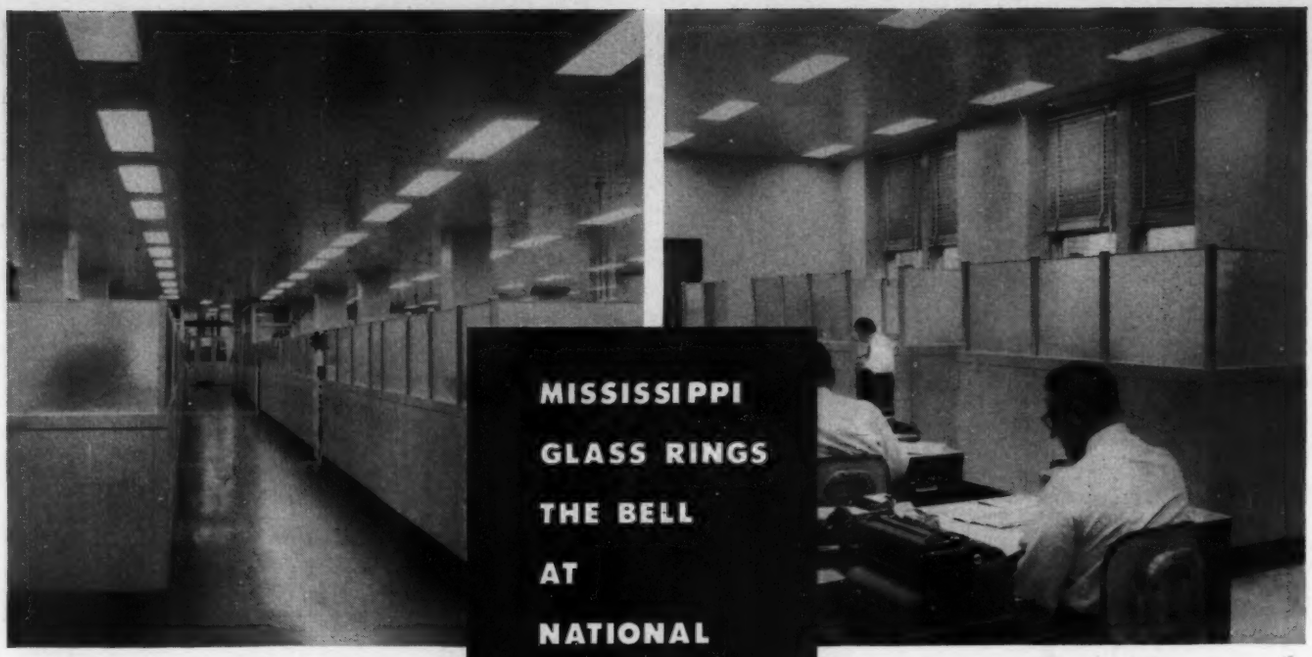

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10,000 sq. ft. of Mississippi figured glass glazed in Mill's Movable Partitions. Glazing by George Behm & Sons, Dayton, Ohio.

"Borrowed Light" is Added to Advantages of Moveable Walls by Installation of Translucent, Light Diffusing Glass

National Cash Register Company long recognized as a model of efficiency and management, makes walls do double duty and gain beauty. Office space flexibility is assured by the use of Mill's movable walls . . . while the added advantages of borrowed light provided by glass promote efficiency in present or future arrangements.

Translucent without being transparent, this modern glass protects privacy completely—yet floods adjoining areas with copius quantities of soft, diffused, glare-free light. Interiors appear larger, brighter, more cheerful . . . and more pleasant working conditions boost employee morale. The higher illumination levels makes seeing tasks easier—reduces costly errors. Glass has utility as well as beauty—it never wears out, never needs refinishing or repainting. Always new, always modern, this marvelous material wipes shining clean with a damp cloth.

Make light a part of your plans—let it boost your efficiency. When you build or remodel specify glass by Mississippi. Available in a wide variety of patterns and surface finishes wherever quality glass is sold.

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NEW YORK • CHICAGO • FULLERTON, CALIF.

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SYMBOL OF THE STANDARDIZATION YOU ASKED FOR

This "CI" insignia on **cast iron soil pipe and fittings** is your assurance that the product meets the standards of weights, dimensions and laying lengths of the Cast Iron Soil Pipe Institute . . . standards which the plumbing industry asked for.

This "CI" insignia represents the results of years of effort by all branches of the industry. State, regional and national groups and associations requested the Institute to bring about the standardization of cast iron soil pipe and fittings. With the full cooperation of all segments of the industry, and the help of the Commodity Standards Division of the United States Department of Commerce, such standards were adopted. This "CI" symbol on soil pipe and fittings means interchangeability—that "GI" labeled products of any manufacturer will member with "CI" marked patterns of any other producer. This means a saving in time and money. This will benefit the architect, builder, wholesaler, contractor, plumber, inspector and owner.

This "CI" insignia is your assurance of quality, uniformity and permanence. **Specify and use "CI" soil pipe and fittings.**

THE MARK OF QUALITY AND PERMANENCE

CAST IRON SOIL PIPE INSTITUTE

1627 K Street, N. W., Washington 6, D. C.

Safer than Slippery Flooring

A matador is aware of the risks in his job but because SLIPPERY FLOORS GIVE NO WARNING—often look safe—workmen can be killed or hurt before they know *their* danger! A practical remedy is A. W. SUPER-DIAMOND—tough, rolled-steel floor plate with an exclusive, engineered raised-diamond surface. SUPER-DIAMOND puts 40 anti-slip traction points in every footstep—gives maximum foot safety at low cost. Investigate SUPER-DIAMOND for accident prevention. Write for new Booklet SD-19.

A.W. SUPER-DIAMOND

Economy Rolled Steel Floor Plate

ALAN WOOD STEEL COMPANY

CONSHOHOCKEN, PA.

Other Products: A.W. ALGRIP Abrasive Rolled Steel Floor Plate Plates • Sheet • Strip • (Alloy and Special Grades)

A|E LITERATURE

(*Continued from page 274*)

STORE FRONTS AND ENTRANCES

• Two portfolios, designed either for standard filing or to serve as wall hangars, present details of *Metal Store Fronts* and *Aluminum Entrances*. Materials detailed are classified and tab-indexed according to use. The first sheet of each section provides a further index in 3-in. scale to the full-size detail sheets following. Moldings and assemblies are shown full, half and quarter size for tracing without lifting the drawing to relocate details. *Brasco Mfg. Co., Harvey, Ill.**

PLAYGROUNDS

• *Planning Your Playground* discusses proper utilization of play areas, capacity of equipment, appeals of different recreational devices, respect for safety, circulation, progression in play and proper surfacing. Also available is a booklet containing *Playground Equipment Specifications*. 40 pp, illus. *J. E. Burke Playground Equipment Co., Fond Du Lac, Wis.*

DOOR AND CABINET HARDWARE

• *Sliding Door Hardware and Cabinet Hardware* presents specifications for architects and drawings showing correct installation of sliding door hardware. Every item in the Acme line, including several new products, is fully described. 12 pp, illus. *Acme Appliance Mfg. Co., 35 So. Raymond Ave., Pasadena, Calif.*

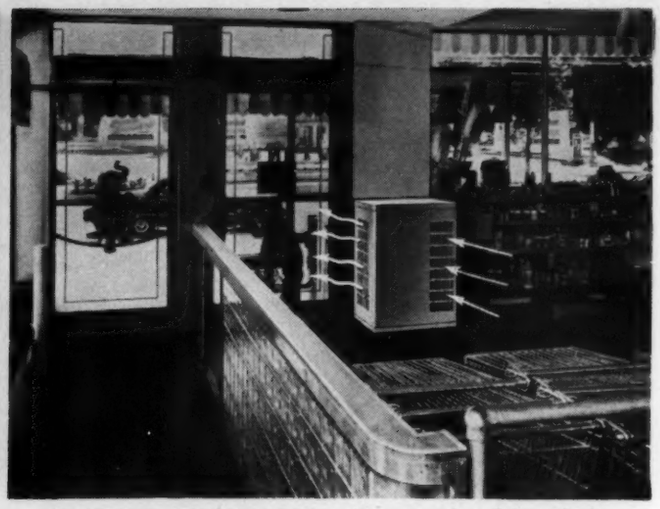
BUILDING RESEARCH

• *Technological Research and Construction Markets* reports under four major headings and 30 subheadings such subjects as The Building Industry and Its Technology, Future Markets for Buildings, The Case for a Building Science, and a history of the Building Research Advisory Board and the Building Research Institute. *The Chamber of Commerce of the United States, 1615 H St., N. W., Washington 6, D. C.*

WOOD FRAMING

• *Wood Framing* presents advantages and disadvantages of two wall and five roof framing systems and presents cost information resulting from a study sponsored by the Federal Housing and Home Finance Agency. 8 pp, illus, 10¢. *Small Homes Council, University of Illinois, Urbana, Ill.*

CEILING MOUNTED Type BT Cabinet, connected to duct with inlet at floor level, replaced a bulky, unattractive cast iron radiator that formerly was located below show window.



BLANKETING OPENING DOORS with a curtain of heated air, Modine Type FE Cabinet Unit protects customers and employees of this supermarket from the coldest wintry blasts.

RECESSED IN THE WALL and blending unobtrusively with the modern decor, a Modine Type BF Cabinet Unit provides economical heating, requires almost no floor space.

HARD-TO-HEAT CHURCHES offer no problems for Modine Cabinet Units. Here cold air, drawn into opening in bottom of unit, is heated and discharged through wall grille.

SEE YOUR HEATING JOB HERE?

Then Modine Cabinet Units are your low-cost answer!

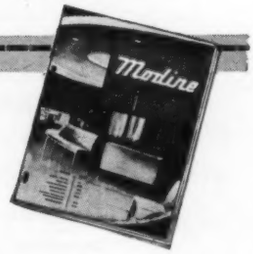
YES, for the steam and hot water heating applications pictured above—and hundreds of others—versatile Modine Cabinet Units provide economical comfort. Quiet blower fans assure positive yet gentle circulation of heated air. Some models have provision for cooling with chilled water.

What's more, Cabinet Units' attractive appearance—plus their ability to replace at least two or three cast iron radiators—makes them ideal for new construction or modernization. If you've a difficult heating problem, get all the facts about Cabinet Units from the Modine representative listed in your classified phone book. Or mail the handy coupon at the right.

Modine
CABINET UNITS

MODINE MFG. CO.
1510 DeKoven Ave., Racine, Wis.

Please send me immediately a free copy of Bulletin describing Modine Cabinet Units.



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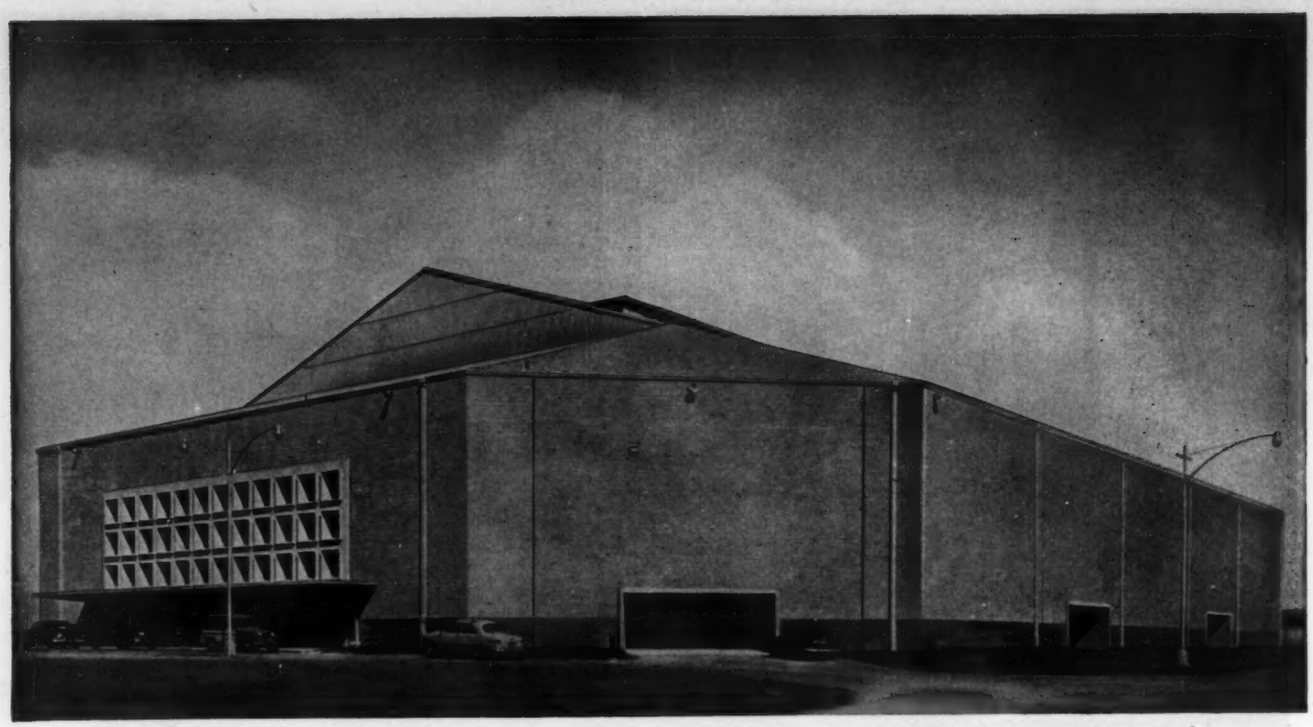


Heart O' Texas Coliseum, Waco; Owner, McLennan County; Contractor, Farnsworth and Chambers Co., Inc., Houston; Architect, Harris H. Roberts, Waco.

Built High, Wide and Handsome with concrete block made with Duraplastic*

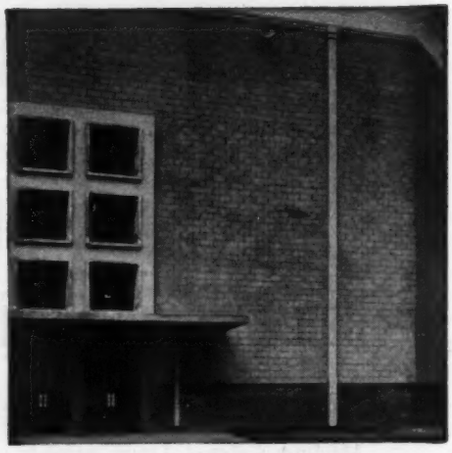
Built high and wide enough to seat 11,500, Waco's Heart O'Texas Coliseum matches size with good looks. To achieve good looks on such a large scale, the builders specified concrete block—98,000 of them—all made with Duraplastic air-entraining portland cement.

More and more builders, with an eye to appearance and durability, are choosing concrete block made with Duraplastic cement. They like the clean, true edges . . . the richer face texture. Another desirable feature of such block is their high resistance to the passage of water.

Many contractors specify Duraplastic cement for their regular concrete work because it provides greater plasticity and workability, aids proper placement and increases durability.

YET DURAPLASTIC COSTS NO MORE

It sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N.Y.



42'-HIGH wall shows fine masonry wall of Duraplastic-made block. True edges, pleasing color and texture of Duraplastic block help assure better-looking block jobs.

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*"*Duraplastic" is the registered trade-mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.*

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Makes Superior Concrete Products at No Extra Cost

UNITED STATES STEEL HOUR—Televised alternate weeks—See your newspaper for time and station.

Architect Edward Stone of New York has tastefully combined Gate City units with picture windows in this modern dwelling.

Smart, Modern Design includes Gate City Awning Windows

The horizontal styling of these smart functional awning windows compliment your design and contribute to your client's year 'round living enjoyment.

They provide the home owner with more worthwhile advantages than any other window type... advantages he can only enjoy with **Gate City Awning Windows.**

100% ventilation control, real rain protection, easy operation, complete factory weatherstripping, dual action hardware and a choice of two superb window units, wood or aluminum.

Gate City has established a new standard for Aluminum Awning Windows with: ★ Self-Adjusting Sash ★ Extruded Aluminum Strip Glazing ★ Completely Enclosed Hardware ★ Lasting Permanized Finish

Truly versatile, Gate City Awning Windows may be used with picture windows, fixed side lights and window walls...offering unlimited design possibilities.

Gate City AWNING WINDOWS

Perma-treated for Long Life

"Window Craftsmen for over 40 years"

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Gentlemen: I would like complete information on

☐ Gate City's Wood Awning Window
☐ The New Gate City Alumiuum Awning Window

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Address_____

City_____ **Zone**____ **State**_____

population of metropolitan Pittsburgh; from 1940 to the present time the increment has been double the present population of the Dominion of Canada. Total population is expected to increase to 175,000,000 or 176,000,000 by 1960.

There is every reason to believe that the American people expect to maintain and even improve the present standard of living. Judging from the quality of special merchandise being produced and sold for babies and small children, and from the number and high quality of school buildings being built, it is the apparent determination of the young parents of America that their children shall have more of the substantial things of life and better quality things than youngsters, on the average, have ever enjoyed before.

American industry rather generally expects a period of expansion to follow the current minor adjustment. Last October spokesmen for the electric utilities industry stated that plans were being made for doubling the then capacity of that industry within ten years. At the same time it was stated authoritatively that the chemical industry would increase its then capacity by 75 per cent within the same ten-year period. Last January the General Motors Corporation announced a billion-dollar plant expansion and improvement program to be carried out this year and next. Various other corporations, although expecting minor setbacks in business volume this year, are pushing right ahead with their expansion plans. A recent survey indicates that this year's total outlay for plant construction, equipment and improvement will be only 4 per cent under last year's total, and last year's record was an all-time high.

The year 1953 was remarkable in a number of respects. It rolled up a record total output of goods and services without a record volume of motor vehicle production. It rolled up a record dollar volume of construction contracts without a record volume of residential building. Due to removal of government restrictions, it showed 50 per cent increases over the preceding year in commercial building volume and social and recreational projects. It had an all-time record volume of new school building. In fact, the school building boom has been one of the most spectacular features of recent years. Although there was an estimated national total of $2,200,000,000 to $2,300,000,000 school-building starts in 1953, it has been authoritatively stated that the current rate of activity would have to be somewhat more than doubled if the country is to catch up with school requirements by 1960.

While the postwar peak of housing activity was passed in 1950, there seems to be a continuing demand for some 1,000,000 to 1,100,000 new non-farm dwelling unit starts per year. In most other classes of structures, there are potential and actual backlogs of demand. In addition to the school demands, there are developing pressing needs for other community facilities, such as expanded water supply, sewerage systems, electric utilities, hospitals, churches and recreational projects. There are 22,000,000 more motor vehicles on the nation's

(Continued on page 286)

2 Styles—1 Quality

CASTELL #9000
Drawing Pencil in its conventional cedar wood case.

PUSH BUTTON LOCKTITE
—the lead holder with the bull dog grip, and imported CASTELL #9030 Lead.

Some people like sedans—

others prefer convertibles—

Thousands of engineers, designers and draftsmen like wood cased CASTELL 9000 Drawing Pencil—many other thousands are partial to our bulldog grip push-button LOCKTITE Holder and imported CASTELL 9030 Refill Lead.

But whichever style you prefer, the CASTELL lead is the same—absolutely identical in all 20 degrees, 8B to 10H.

This is the famous CASTELL lead which has left its imprint on much of the world's material progress for the past decades.

You can take your choice . . . either CASTELL wood pencil which generations of professionals regard as their old standby—or push button LOCKTITE, the balanced beauty that never smears your fingers.

Whichever you use, you are giving yourself the advantage of the world's best, the standard of quality—the beacon for all other pencils to follow.

Order CASTELL *from your dealer today.*

A.W. FABER-CASTELL
PENCIL COMPANY INC., NEWARK 3, N. J.

Hudson's Northland, a branch of J. L. Hudson Company department store, in the heart of the new Northland regional shopping center in Detroit. Republic "Inch-Marked" E.M.T. was used on this project.

Helpful facts for architects

We know that electrical conduit is only one of many items you're concerned with. But we'd like to point out a few facts about Republic "Inch-Marked" Electrical Metallic Tubing which can make a big difference.

ECONOMY. Because it's easy to install, Republic "Inch-Marked" E.M.T. gives the contractor a chance to use his skill and knowledge of electrical installation. There are no threads to cut. Connectors and couplings go right over the galvanizing. Tight joints are made without disturbing the coating. And that means easier installation, especially in close quarters. And closer bids for you.

SAFETY. Once the wiring is in Republic "Inch-Marked" E.M.T., you can be sure it's safe. Besides giving the mechanical protection of steel, Republic E.M.T. acts as an emergency path to ground when needed.

It's approved by the National Electrical Code for open, concealed and concrete slab construction. It carries the Underwriters' Seal of Approval on every length. It meets Federal Specification WW-T-806 and American Standards Association Specification C80.3.

CORROSION RESISTANCE. From end to end. In addition to the protection of steel, the tightly adhering galvanized coating and elimination of thread cutting give unbroken corrosion resistance.

Why not put in Republic "Inch-Marked" E.M.T. as an alternate on your next job? You can get more facts from Sweet's. Or write for SA-54.

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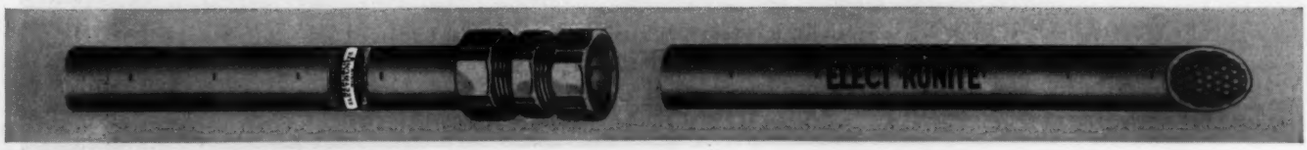
REPUBLIC ELECTRUNITE E.M.T.
"INCH-MARKED" THE MARK OF QUALITY



ANOTHER

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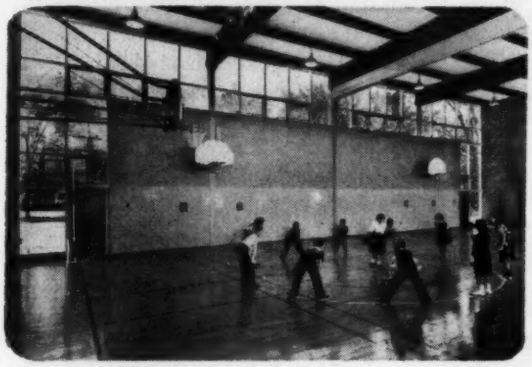
for BETTER AIR

it's ADJUSTABLE

AIR DEVICES INC., 185 MADISON AVE., NEW YORK 16, N. Y.

Architects—Perkins and Will
Westmere School, Guilderland, N. Y.
Beauty and comfort underfoot will not diminish with years of constant school traffic. Under the supervision of the Hillyard Maintaineer, asphalt tile corridor was treated with Hillyard HIL-TEX, and finished with slip-resistant SUPER HIL-BRITE WAX.

Famous Architects FEATURE HILLYARD FLOOR TREATMENTS throughout *New Educational Installations*



Architects—Perkins and Will
Paige School, Schenectady, N. Y.
Hillyard TROPHY SEAL and FINISH has been specified for all gym and recreational floors—for a lighter, smoother surface with great slip-resistance and controlled light reflectivity. Hillyard Maintaineer in N. Y. territory acted as Job Captain on gym finishing without charge.

To the architect's credit are the designs for outstanding new school buildings of every kind . . . and for the beauty of their floors, busy specifiers find Hillyard Products consistently dependable, easy to use, capable of lasting service . . . and the "job captain" assistance of a technically trained Hillyard Maintaineer is always available on request.

Architects—Perkins and Will
Heathcote Elementary School
Scarsdale, N. Y.

Architects—Perkins and Will
Altamont Elementary School,
Altamont, N. Y.
Classroom floors are attractive and color bright. The selection of Hillyard products approved safe for resilient floors assures natural color beauty. Maintenance, important to school budgets, is economical.

MAKE IT A HABIT

To contact the Hillyard Maintaineer.

You can depend on him for reliable product information. He is technically trained, an accredited representative of a company with almost 50 years' experience as manufacturer of quality floor treatments. He will act as your Job Captain on floor treating, without charge. Write for the name of the Hillyard Maintaineer near you.

ST. JOSEPH, MO.

San Jose, Calif. • Passaic, N.J.

highways today than there were at the end of World War II; that of itself creates tremendous backlogs of demand for improved highways, streets, parking facilities and all the other accessories needed by a completely motorized nation. We have scarcely begun to meet the construction needs of postwar U. S. A. When the economy is growing at the present rate, it seems to be a case of one backlog demand after another.

Some of the developing backlogs have been mentioned already; there are a number of others. For instance, I saw recently the statement that only 3 per cent of the nation's dwelling units are air conditioned; only 14 per cent are equipped with freezers. The demand for bigger and better houses for growing young families has already been mentioned. There is, however, another set of needs arising from the increasing numbers of persons aged 65 years and up. Between 1950 and 1960 the number of these older persons will increase by some 3½ million, or 28 per cent. Current researches are indicating that many of these older persons require special types of housing, special types of institutional accommodations and special types of social and recreational facilities.

Total school enrollment, now at an all-time high, is expected to increase by another 25 per cent between now and 1960. The current school building boom consists principally of elementary school projects; but there is developing a strong backlog of need for high schools, and greatly increased college facilities will be required in the 1960's. Note the sequence of expected backlogs. If you want to look that far ahead you might note that after the high school and college building booms, the postwar babies will be getting married and starting a new cycle of building demands.

Besides the young people and the old people there is another quite important age-group to consider, those of ages 18 to 64. They are the ones on whom will fall the job of producing the goods and services and structural facilities required by our fast-growing and big-demanding body of consumers. On a reasonable estimate the number in this age group will increase by about 10 or 11 per cent between 1950 and 1960, while the combined numbers of infants, school-age children and persons over 65 will increase some 25 per cent. The members of the labor force are going to have to produce considerably more per man-hour of effort than they ever did before, if requirements are going to be met. To achieve a quite moderate improvement over 1950 living standards by 1960 will require a 20 to 25 per cent increase in output per man-hour of gainfully employed labor.

This will require a vast capital investment in improved production facilities — new factories, new machinery, new processes, new management techniques. At some stage the current downtrend of factory building will have to be reversed. The usual pattern for this kind of activity in and after a war or defense program is probably being followed. What hap-

(Continued on page 288)

FACTS FOR ARCHITECTS

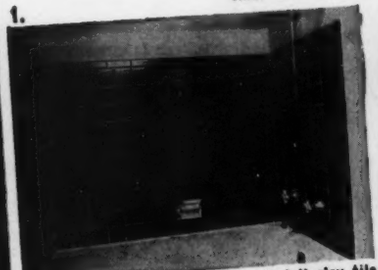
ABOUT "CONSTRUCTION BY ADHESION"*

MIRACLE ADHESIVES CORP.
214 E. 53 St. • New York 22, N. Y.
"CONSTRUCTION BY ADHESION"
*Reg. U.S. Pat. Off.

HERE ARE NEW METHODS WHICH MEAN SUBSTANTIAL SAVINGS IN LABOR AND MATERIALS FOR MODERN CONSTRUCTION in both *NEW* building and *MODERNIZATION*

WRITE TODAY FOR RECOMMENDED SPECIFICATIONS ON 1. Setting Genuine Clay Tile. 2. Insulating Ducts. 3. Insulating walls and ceilings either by Direct Adhesion or in conjunction with Surface Anchors. 4. Installing floor runners; bonding furring strips.

1.



Today it is normal procedure to install clay tile in hotel bathrooms without losing a night's revenue. This illustration shows one of the 144 rooms in the White Plaza Hotel, Dallas, Texas, in which MIRACLE ADHESIVE was used to do the job from the time the guest left his room in the morning until he returned that afternoon.

2.

Plaster applied over wire and cork which has been attached to aluminum ducts using MIRACLE ADHESIVE and MIRACLE SPINDLE ANCHORS at John Hancock Mutual Life Insurance Co. Building, Boston, Mass. ARCHITECT, Cram and Ferguson. BUILDER, Turner Construction Co.

3.

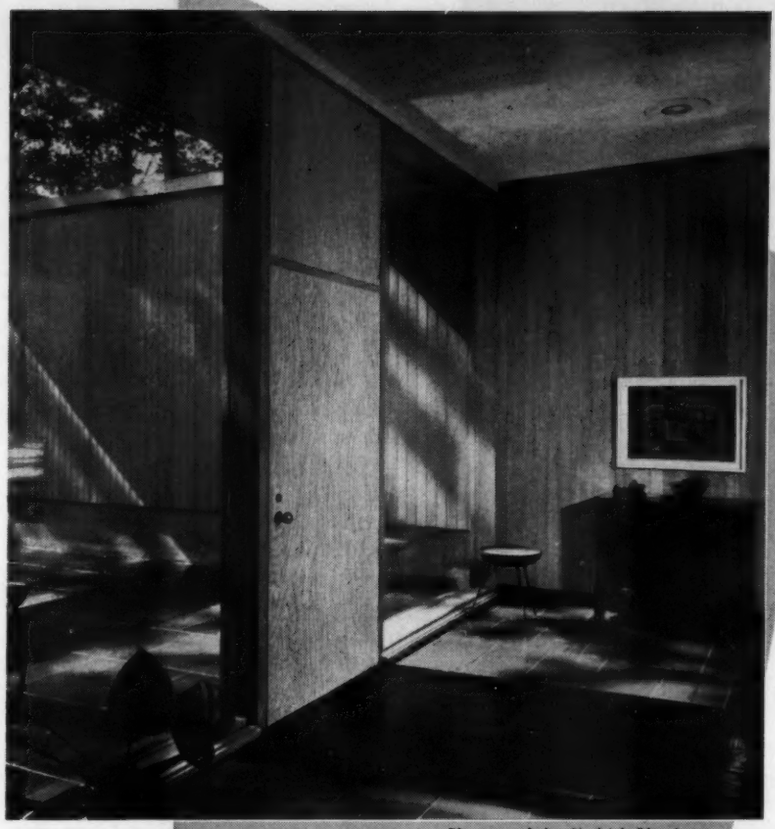
FIBERGLAS insulation, Type PF-613, 2" thick — bonded to concrete ceiling using MIRACLE PRONGED ANCHORS at Radio City Studio 6B, New York, N. Y. CONTRACTOR, William J. Scully, Inc., New York, N. Y.

4.

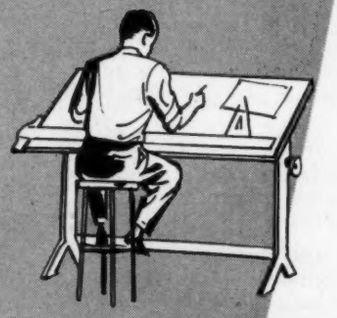
WOOD RUNNERS installed on concrete floors with MIRACLE ADHESIVE and MIRACLE ANCHOR NAILS to support 2" solid partitions. Washington Circle Apartments, Washington, D.C. GENERAL CONTRACTOR, Charles H. Tompkins Company.

VISIT MIRACLE EXHIBIT AT ARCHITECTS SAMPLES CORP. 101 PARK AVE., NEW YORK CITY
Distributed Coast to Coast and in Canada

For everlasting *Beauty* in modern home design



Photograph by Hedrich-Blessing. Illustration—Sigmund Kunstadter house, Highland Park, Illinois. George Fred Keck—William Keck architects.



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ONE BACKLOG AFTER ANOTHER

(*Continued from page 286*)

pens is a tremendous build-up of capacity for producing the metals, military hardware and other metal products, chemicals and the like. Then when the military orders fall off there is apt to be a drop in industrial construction for a while until various people discover that there has grown up a backlog of demand for expanded capacity to produce consumer goods. This happened after World War I; it happened again after World War II; with the current rapid increase in numbers of consumers it is bound to happen again.

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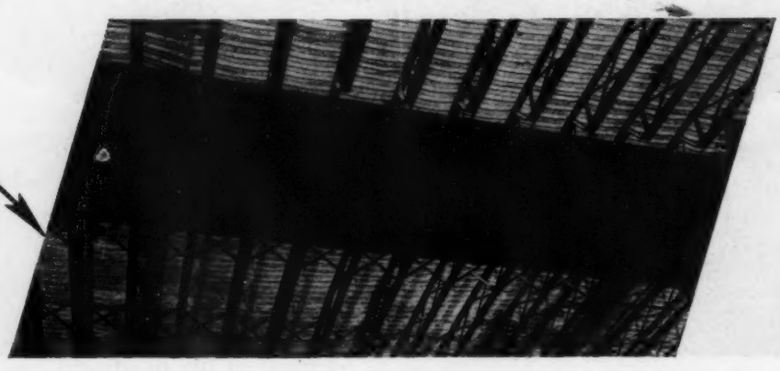

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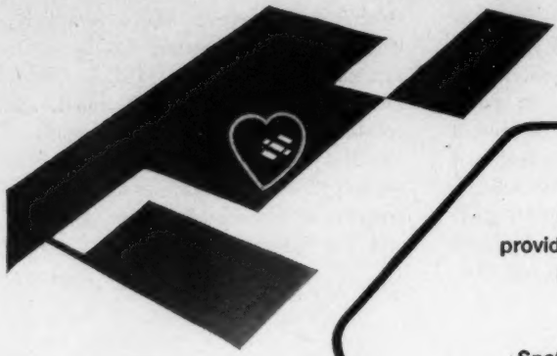

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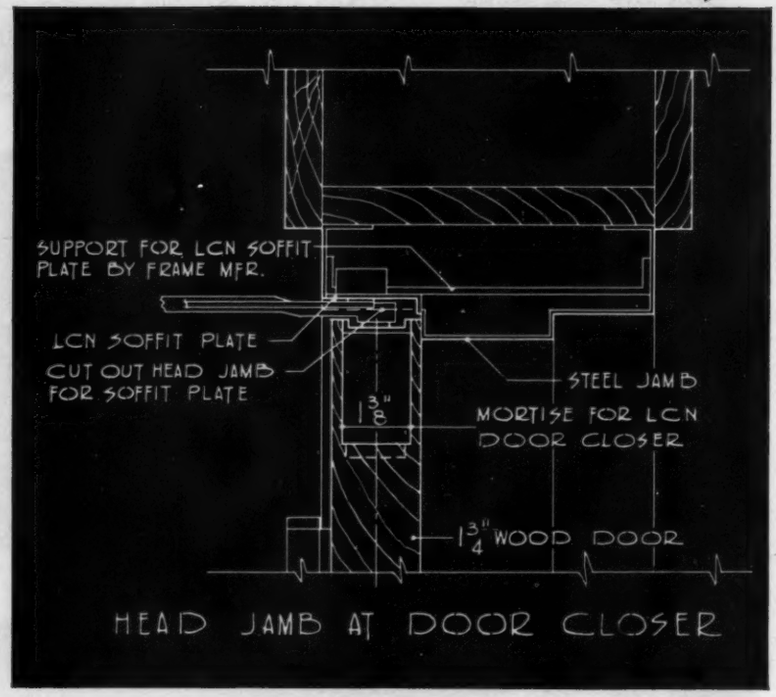
principal line for student development." Harold Bush-Brown, Georgia Tech: "I have only one thought to contribute — I believe in the principle of giving the student at any one stage in his development what he can grasp and make his own." Clinton Cowgill, V.P.I.: "Basic Design appears to have been widely accepted as a preliminary to studies in architectural design, and it seems to be an effective means of breaking up hampering preconceptions, starting creative thinking, and stimulating imagination." And "it leaves somewhat unsatisfied a need for development of appreciation of refinement in form." Thomas Fitz Patrick, Virginia: "One thing is certain. The performance in many schools indicates that certain predicted shapes and forms repeat themselves so often from school to school that I am convinced that this approach unless carefully established results in superficiality. There is developing a complete alphabet of clichés. This entire approach should be reviewed in order to test not the student's superficial design organization capacity but rather his ability to think in terms of basic problems." John Grand, Florida: "The strength of the basic design approach is that it emphasizes creative design." And: "As to its disadvantages, the cardinal problem is the difficulty students have in transferring the lessons learned in designing abstractions to the work of designing buildings." Walter Gropius: "I consider 'Basic Design' as the indispensable backbone of an architectural curriculum, but of course it must be indeed 'basic'." And: "The greater part of the work in this Basic Design course should be the elements of building with all sorts of materials, not only pencil, brush and watercolor." Donald Hamilton, Oklahoma A&M: "I do think certain abstract composition study means more to an advanced student than to a beginner; for the reason that the beginner sometimes fails to see its connection with architecture and approaches it with less enthusiasm than does the somewhat more mature student." Harold Hauf: "The courses known as basic design have really brought a breath of fresh air to the architectural curriculum. It is necessary, however, that we do not become so involved in them for their own sake that we forget they are only serving as a basis for further work in building design."

Fred Markham comments thoughtfully and at length, pointing to elements of the history of such course work, its meaning and some of its limitations and potential dangers. He says, in part: "Much teaching is highly subjective, a characteristic common to other forms of contemporary art." And: "Through the search for newness, firmly established through Basic Design, the tendency in later courses to force a design solution, straining for effect where simplicity would have been better, has been observed." Donald Mochon, R.P.I.: "Basic Design, if it is not well handled, can create uncertainty among students of the first year, considering their limited capacity for understanding at this time. Sometimes a special language develops, and the whole thing becomes pretty

(*Continued on page 294*)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Construction Details on Opposite Page

esoteric. Transition to the concrete problems of architectural design is often difficult." And: "As a new way to introduce students to design it has been an exciting development, opening a rich and promising field for us to study." Sibyl Moholy-Nagy, with the background of her late husband's pioneering work in this field as well as her own experiences in co-developing the Basic Design course at Pratt, nevertheless raises this warning: "A very small percentage of artistically gifted or pretrained students will score brilliantly, while the rest will never give the ordeal another thought once they go on to 'real' design." Frank Montana, Notre Dame, urges that the proper content of Basic Design is the "analysis of architectural solutions to specific problems from the historical past to the present in all parts of the world as produced by both unknown and well known architects." And adds: "I firmly do not believe in the pure abstract approach to design."

Relation to More Advanced Design

Milton Osborne, Penn State: "It seems to me that it is taught best if the students are given the feeling that the problems are definitely related to their future architectural design rather than in the production of nebulous designs that may be more confusing than enlightening to the student." Theodore Pritchard, Idaho: "The problems of transference of basic design experiences to architectural problems has in my opinion been poor. On the other hand I have found in even some not too strong students a real excitement when turned loose on a post-design *Wanderjahr*. This has happened so often as to make me wonder if we aren't putting the cart before the horse?" Linus Smith, Nebraska: "Our 'Basic Design' consists in a course in design in which we try to point out that design is design and that architectural design is just a part of that." Robert Snyder, Cranbrook, makes a number of pointed observations; among them: "In most cases the alleged exploration is merely covering the spheres of investigation already consumed by non-objective painting." "Current ideology seems to have succeeded merely in substituting one eclecticism for another." "If they spent more time in pursuit of form rather than formlessness, it is conceivable that we could achieve a more virile architecture." Mike Stousland, Miami: "I feel that basic design or first year design should combine the elements of visual design, basic construction principles, and some theory of planning and should not be exclusively an exercise in abstractions." Elliot Whitaker, Ohio State, writes that "the most important part of the course is the teacher," and points out the desirability of placing very able teachers there who might in former years have been considered senior design critics. Ronald Whitely, Kansas State, writes the best possible conclusion: "How difficult it is to see the relationship between the G-scale as a five-finger exercise and Beethoven's Minuet in G."

(*Continued on page 296*)

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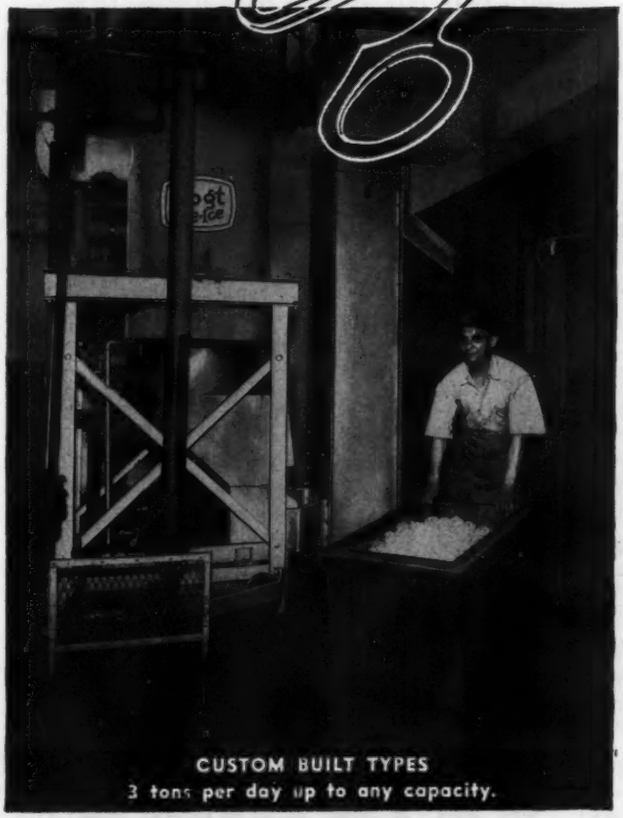

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An Integrated Curriculum?

The RECORD's fourth question was: "*What advantages and disadvantages do you see in the kind of 'integrated' curriculum Professor Sha'ag describes at the University of Florida, where 'they teach all architectural sciences simultaneously and combine them in the same exercise'?*"

This question put the University of Florida and the participants in the Questionnaire on the kind of spot where very few wished to be. Voting was extremely light. John Grand of Florida showed up but admirably declined the opportunity to stuff the box. He pointed out that their method "goes against the grain of superspecialization" and that new faculty members "sometimes find it difficult to accept the challenge and the responsibility of being as broad-gauge themselves as we hope to educate our students to be." He indicates no doubts about the concentration of responsibility when he adds: "Instead of having our team of two we feel the situation might be improved if all the requisite skills might reside in one person so that we might approach something akin to Mark Hopkins and his ubiquitous log (or Frank Lloyd Wright and his Taliesin)."

Professor Sha'ag's report had not described essential differences in the kinds of integration being attempted and practiced in our schools. Carnegie, who had been placed under the very general banner of "integration," hastened to relieve the embarrassment of the others standing there by replying: "If 'integrated' means the inter-relating of course planning and teaching to the end that the student is led to discover the inter-relation of all phenomena, then we believe that it is the only method worthy of educators and the only abiding purpose of education. Almost all of our lecturers participate in the follow-up application of theory to design situations, in the planning of courses, and in appraising student development; but we have not here felt it necessary to destroy the form of the individual courses in order to get the sense of inter-relationship." Walter Gropius summed up that philosophy of education which he has long preached and practiced: "The curriculum of the architect should grow like the annual rings of a tree instead of sectorially. Only if all the problems involved in an architect's curriculum are dealt with in their relationship to each other can the student properly grasp their meaning. All special courses must keep this relation to the whole, gradually widening the understanding of the comprehensive entity simultaneously from the artistic, technical and economic point of view."

Very few answers attempted more than to point out dangers of over-integration in very general terms. The danger of inducement to "skimming"; the likelihood of lack of depth in the average faculty member's approach to a broad range of subjects; the temptations to oversimplify and generalize were warnings that were raised repeatedly. Many felt that the right kind of integration focused more attention on the student; many others felt that almost any kind of integration would result in loss of quality in subject matter. In general it seemed that the correspondents were catching their breath for the next question: "*Is a student tendency to 'copy' dominant contemporary 'styles' a serious problem and, if so, how do you cope with it?*"

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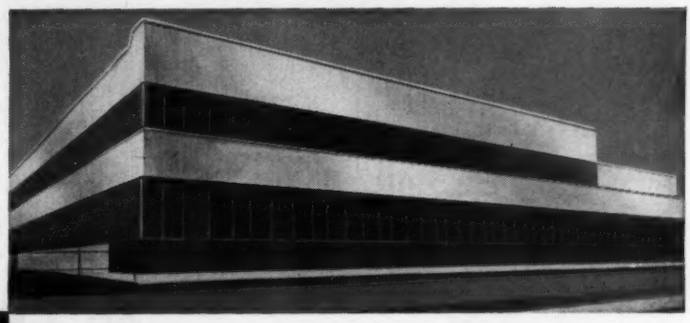

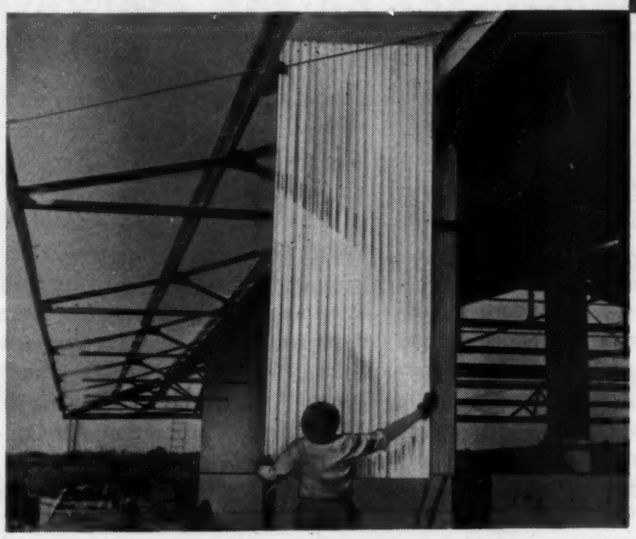

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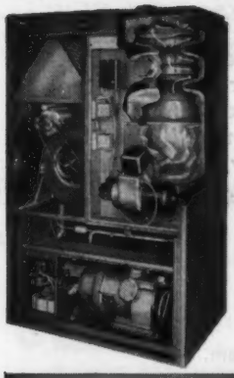

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OPINION

(*Continued from page 24*)

Does this represent the kind of "breadth of view and standard of objectivity" which the Commission immediately adopted? If it does, how could there be a really broad re-examination of the profession and architectural education? Is Professor Gropius' view not directly related to the singular fact that such really great American architects as Sullivan and Wright have preferred to make their contributions to architectural education outside the climate of universities? And that, in late years especially, so many universities have invited to their campuses distinguished practitioners not previously identified with education (Wurster, Belluschi, Fuller, Sert, Eames, Harris, Goff, Dinwiddie, Ford, Armstrong and many others)? To many of us this is a healthy sign and means that in architectural education we need a breadth of view and a standard of objectivity which can face the facts of contemporary life and consider what might once have been unorthodox solutions. Do we really need more text books?

Another set of pertinent ideas which did not even get into the main text of the Survey is referred to in footnote No. 40 of Chapter 4, pp. 124–5 "The Training of Architects: An Interim Survey" published in the ARCHITECTURAL REVIEW, June 1950, pp. 367–373. Whether the Commission unanimously agreed to treat this international survey of 1950 positively or negatively, they could at least have summarized some of its findings in the text of the 1954 report. Their readers should be given an opportunity to evaluate the major findings as they relate directly to the Survey material.

I can easily forgive Dr. Burdell for the several times he has quoted from my review "out of context." I can forgive him for attempting to twist me into looking backward. I only hope that more architects will take the time to read the two volumes as carefully as I have. Taken as a whole it is a monumental job which needed to be done. Walter Taylor's epilogue seems to me to be tops and no one could do the historical summary with its meticulous tables and charts better than Turpin Bannister. But in the future I trust that it may be possible for others to discuss, to question, and to voice opinions about many aspects of the Report without being either confused or insulted.

— Buford L. Pickens

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- **All the storage, office and service space required of a small community building.**
- **A complete radiant heating system of USS NATIONAL Steel Pipe.**

In such installations where efficiency is the key word, there is no better choice of materials to be made than NATIONAL Pipe—dependability at a moderate price. So dependable that architects and contractors have been specifying it for over 60 years as the "standard" for conventional plumbing and heating systems. They know that NATIONAL Steel Pipe has the inherent characteristics necessary to meet the requirements of such applications—smooth, uniform bending; sound, strong welding properties; and long service life—characteristics that have made it the largest selling pipe in the world.

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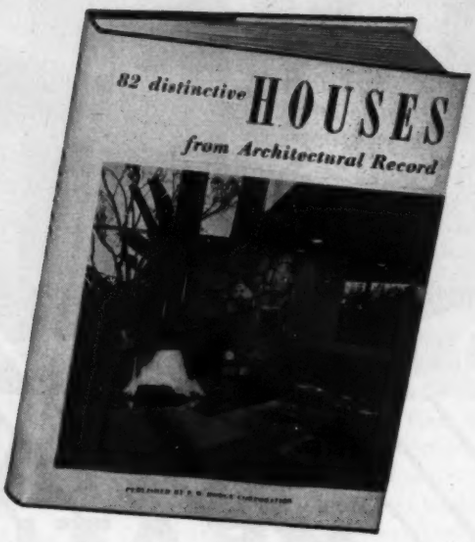
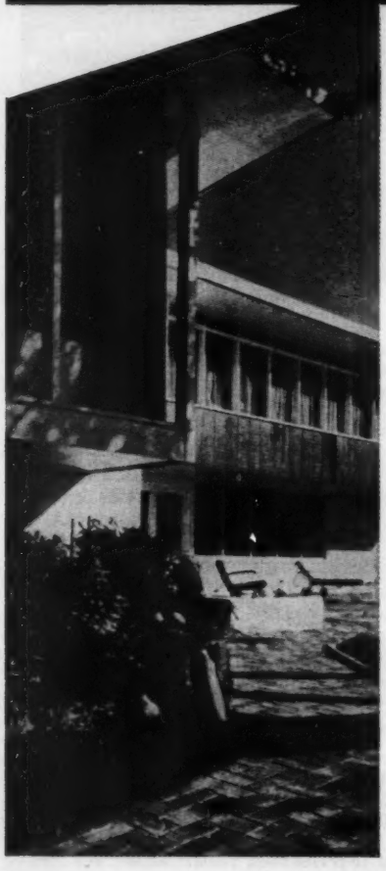
82 distinctive HOUSES

from Architectural Record





The pages of *Architectural Record* have long been a display-case for house designs which, in the trained opinion of *Record* editors, deserve the widest possible dissemination among members of the profession. Only one criterion has ever governed choice of a house for editorial presentation: quality architecture. Neither size nor price nor the architect's fame (or lack of it) has influenced the selections in any way.

Eighty-two of these quality designs have now been consolidated in permanent book form, reprinted exactly as they first appeared in *Architectural Record*. Among them can be found an inspired design solution to virtually every client requirement, desire, demand, and whim an architect will be called upon to satisfy. There are houses for young couples with small children . . . houses for retired businessmen . . . houses that double as offices for professional men . . . houses for people who lead vigorous outdoor lives . . . houses for the sedate, quiet family . . . houses for people who entertain frequently, houses for those who entertain almost never.

Here, too, are houses for folks who live simply on modest budgets, as well as houses for those with unlimited funds. But whether expensive or not, all the houses have one thing in common: superior design that makes each one an architectural success.

Moreover, there are a full 80 pages of Time-Saver Standards for Houses, "how-to-do-it" reference data on questions of size, volume, area, weight, materials and methods applicable to house design and construction.

Because it offers proven-in-use answers to any number of difficult problems encountered on every residential project, many readers will consider this section alone worth the full price of the book.

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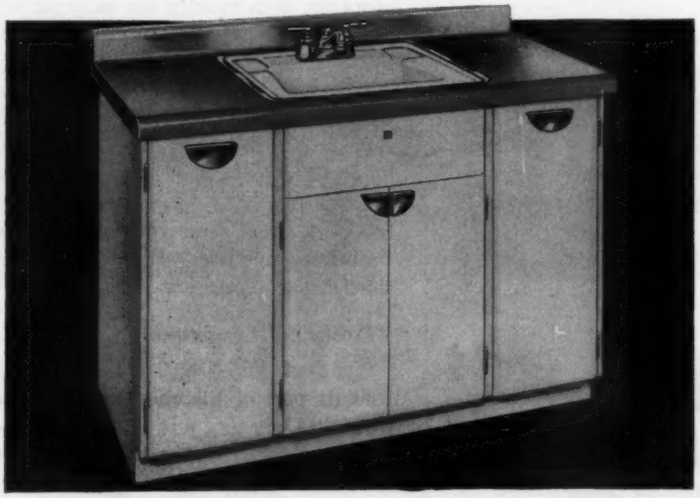
THE DRESSLYN is a luxurious 3-in-1 combination with a gleaming lavatory of genuine vitreous china. Available in four sizes—42, 46, 58 and 62 inches. And in your choice of either the smart-looking kneehole model or the extra serviceable straight front model with center storage compartment. *Complete Dresslyn unit is factory-assembled and shipped in one carton for easy installation.*



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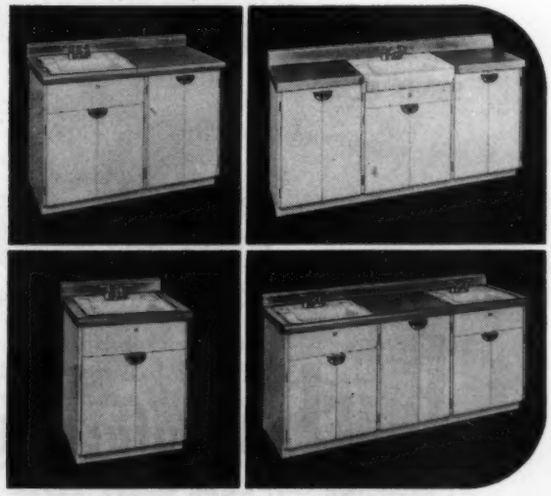
Now made with new design counter tops of durable, decorative Micarta, and available in wide choice of cabinet sizes and lavatory arrangements, American-Standard lavatory-dressing tables are the most distinctive ready-built combinations on the market. Cabinets come in gray, peach, buff, blue and white; Micarta tops in tan, mulberry, and gray; lavatories in white and popular American-Standard colors.

The handsome dressing tables feature a fine quality lavatory and a vanity-cabinet. Most models include such built-in conveniences as a medicine chest, specially designed drawers for cosmetics and toilet accessories, as well as plenty of storage space for towels.

The new and improved line covers the Dresslyn with its deluxe vitreous china lavatory; the Merrilyn (vitreous china lavatory) and the Highlyn (heavily enameled cast iron lavatory).

For details regarding models, colors and dimensions, please contact your nearest American-Standard sales office or write for Form 384-3.



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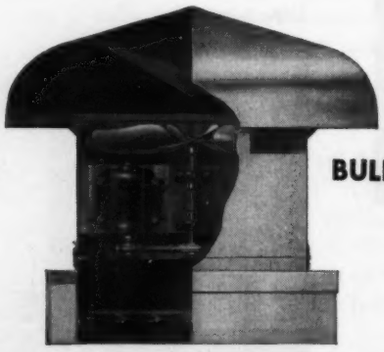

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THE RECORD REPORTS

WASHINGTON

(*Continued from page 38*)

will be issued and the agency will invite expressions of interest from private architects in the area concerned. From the submissions, a selection will be made for designing the project in question.

All design work is to be carried out in strict conformance with General Services Administration policy; this means that the PBS will outline to the architect exactly what it wants and will supervise the project from the beginning.

Post Offices Separate

The Post Office is to handle all projects embracing post offices exclusively. PBS will supervise all other construction under the program, including those structures combining post office space with other Federal functions.

GSA Administrator Edmund F. Mansure said this of the new program: "Lease-purchase is just another method of acquiring property. We will pay for it with rent money over a fixed number of years. Then the government will own the property. It is exactly the same as the way private citizens buy their own homes through regular payments.

"We have rented property in the past, and will continue, of course, to do so in the future. We have constructed buildings with direct capital appropriations, and we expect to do so in the future. Lease-purchase does not replace these traditional methods. Rightly, it is a third string to our bow."

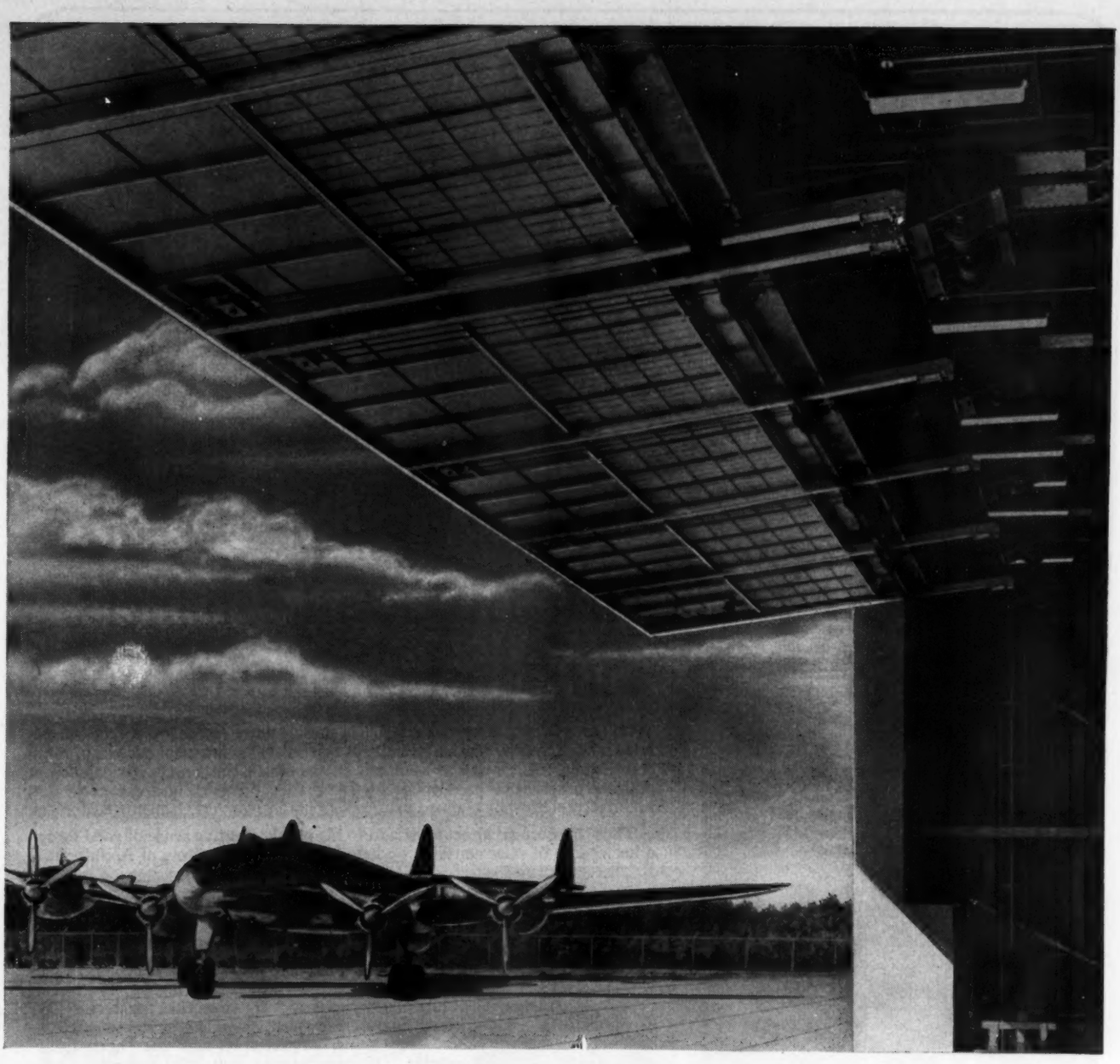
"Package" Approach

The Post Office Department explained that its part of the effort would differ from GSA's in that projects will be handled as "packages" with the sponsor handling details for the most part.

When a post office project has been approved by Congressional committees and Budget Bureau, plans and specifications will be prepared. All prospective bidders, reached by public advertisement, direct mail, etc., will be furnished with a complete "package" including the plans and specifications, a copy of the proposed lease-purchase contract, surveys, topos, bidding procedures and requirements. This is meant to permit all bidders to compete on an equal basis.

The award contract, in the case of post offices, will provide for all financing,

(*Continued on page 308*)



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Successful Store Design That Attracts Customers and Satisfies Clients

With the return of a buyer's market in most lines of merchandise, good architectural design now plays a prominent role in the commercial success of retail shops and stores, as well as wholesale showrooms. Clients no longer can accept architecture that is merely "attractive"; they demand, and expect to get, architecture shrewdly planned to lure shoppers and convert them into customers.

Thus the store architect must add to his purely creative sense of good design a keen sense of salesmanship. To help him do so, the editors of Architectural Record have published:

DESIGN FOR MODERN MERCHANDISING

Stores, Shopping Centers and Showrooms

Reprinted from recent issues of the *Record*, here are scores of shops and stores whose obvious eye-appeal is matched by their proven sales appeal. The editors present them in scores of fine photographs and drawings that make clear how every element—store front, interior casework, floor levels, lighting, etc.—enhances sales magnetism. They show, for example, why the "open front" rates so high in sales appeal . . . interior layouts that keep customer traffic flowing smoothly . . . when, where, and how to use color as a selling influence . . . how to segregate "impulse" from "demand" merchandise . . . clever uses of partitions and baffle walls in smaller stores . . . why parking areas must be geared to volume of trade, not the size of the store . . . the importance of customer-comfort services such as air conditioning, sanitary facilities, and the like.

As "consultants" on this book, the editors have called on America's leading store architects—men like Victor Gruen, Morris Ketchum, and Caleb Hornbostel—to offer their counsel on various aspects of successful store planning. Their words constitute the best available advice on design techniques that add up to good business, as well as good architecture. Order your personal copy of this book by mailing the coupon below.

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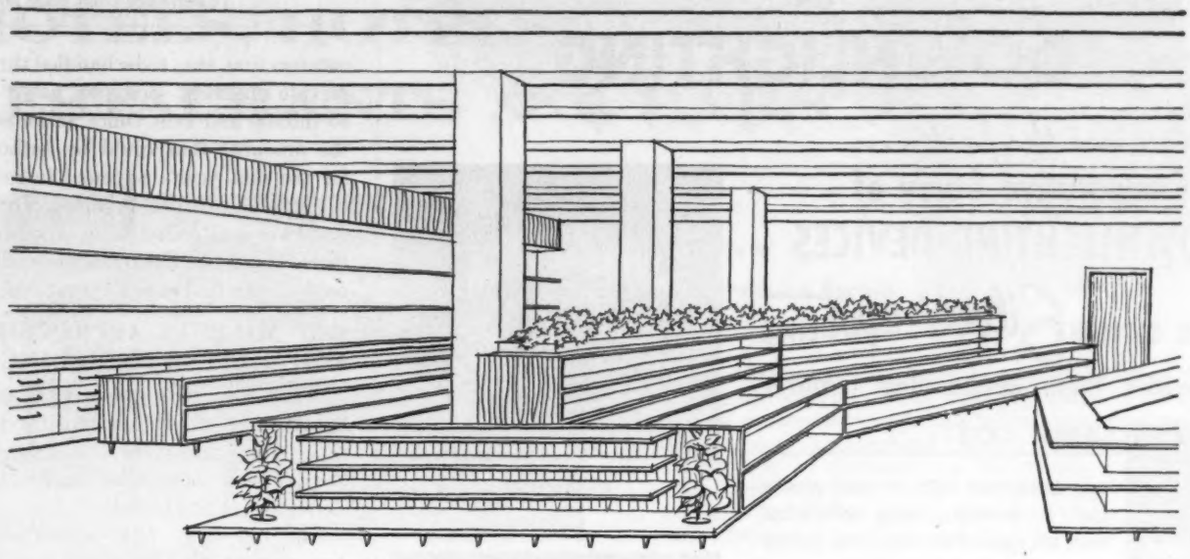

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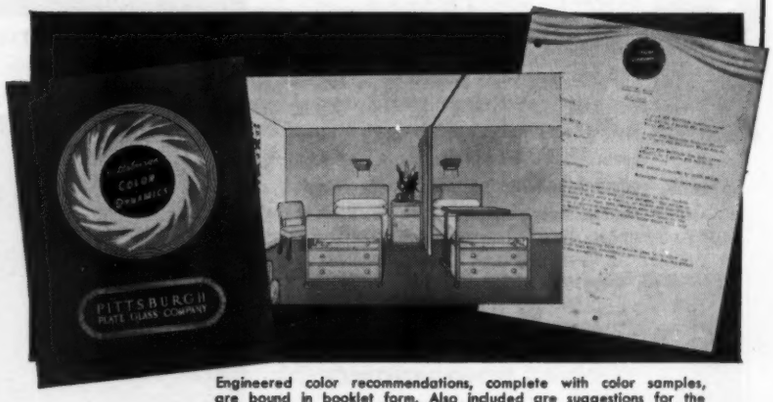
Engineered Color Study for Your Plans—FREE!



Engineered color recommendations, complete with color samples, are bound in booklet form. Also included are suggestions for the correct types of coatings for every kind of material and construction.

YOU can often make your plans more acceptable to your clients by including a detailed color program.

- **Almost everyone** who owns or operates an industrial, commercial or service enterprise recognizes the importance of the influence of color upon people. That's why such a detailed program of color recommendations often can be very helpful.
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- **We'll be glad** to make such a detailed study for you without cost or obligation. Simply call your nearest Pittsburgh Plate Glass Company branch and arrange to have one of our color consultants see you at your convenience. Or mail coupon at right.

For Additional information on COLOR DYNAMICS see Sweet's Architectural File, Section 14/Pi.

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Here are the facts...

A Comparative Study of DOWNLIGHTING DEVICES

THE SKYLIKE *Silver-spot* LINE

Provides these outstanding features

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Lamp replacement costs for most popular types of downlights using reflectorized lamps will approximate three times the cost of lamp replacements for Silver-spot and Silver-dot units.

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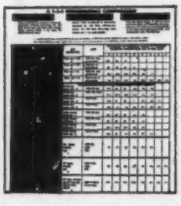
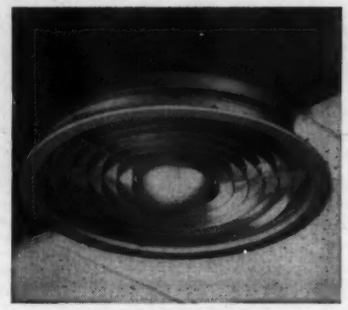
Since many of the commonly used downlight devices employ 150 watt lamps, the 100 watt Silver-spot or Silver-dot units will cost only two thirds as much to operate.

3 TIMES — LIGHT OUTPUT...

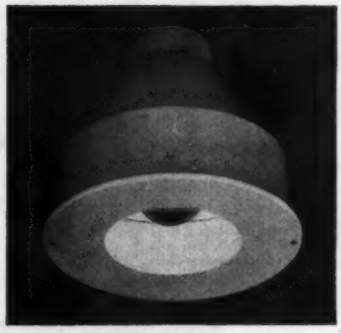
Performance of downlights varies greatly with design and light distribution. In general Silver-spot and Silver-dot produce more effective footcandles within the designed beam. This increase in illumination averages about three times that afforded by other devices but in some cases exceeds five times the illumination within specified zonal limits.



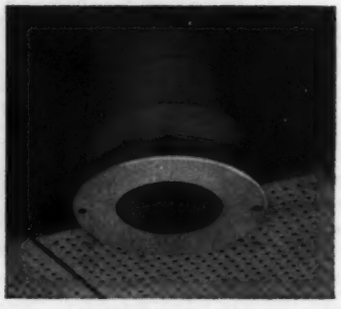
THIS COMPLETE REPORT ON DOWNLIGHTING DEVICES yours for the asking



SILVER-SPOT



SILVER-DOT 113



SILVER-DOT 110

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THE RECORD REPORTS

WASHINGTON

(*Continued from page 304*)

construction, etc., to be handled through private channels. Congress voted GSA $5 million and Post Office $3 million as the amounts that could be authorized for the first year's payment in rent on the structures to be acquired. The program was established on an experimental three-year basis, but funds were allowed only for the first year's operations.

$837 MILLION APPROVED FOR MILITARY BUILDING

A bill authorizing some $837 million for all types of military construction in this country and overseas was signed by the President soon after final Congressional action late in July.

The bill (P.L. 534) authorizes the Army over $228 million, the Navy $208 million, the Air Force $398 million, and the Alaska system $462,600.

Types of construction authorized in the measure include research and development facilities, NIKE sites, Air Force air bases, extension of runways, control towers, theaters, gymnasiums, educational buildings, chapels, clubs, barracks, and warehouses.

Cost Limits Kept

In final passage of the bill, Congress decided to accept a Senate amendment, Section 508, that sets cost limitations on certain types of construction. For example, there's a $20 per sq ft limitation for cold-storage warehouses, and a $6 per sq ft limitation on regular warehouses.

The section also puts a cost-per-man limitation on barracks and bachelor officer quarters. For permanent barracks, it's $1700 per man, for 10-year barracks $1400, and for bachelor officer quarters $5000 per man.

These limitations apply to construction for all three services, but "under special circumstances" the Secretary of Defense can allow exceptions. The section was added by the Senate Armed Services Committee for the purpose of "continuing cost limitations on certain items of construction for which there should be reasonably standard designs and costs."

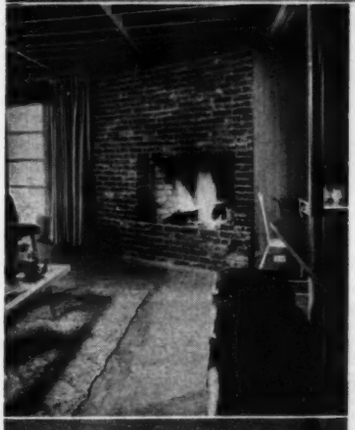
P.L. 534 also continues language that was first inserted in the military construction authorization bill last year allowing a variance in cost of five per cent in projects built in this country,

(*Continued on page 312*)

presenting . . .

MOTELS, HOTELS, RESTAURANTS AND BARS

by the editors of *Architectural Record*



Provides authoritative answers to such key questions as:

- What are the critical factors in selecting a motel site?
- Is a restaurant usually a profitable sideline for a motel?
- How large should motel rooms be?
- What feature of design does most to attract diners to a restaurant?
- What advantages stem from placing hotel ballrooms at floor level?
- How can good design facilitate traffic circulation in hotel lobbies?

This informative new book is a compilation of the excellent material on the physical design of motels, hotels, restaurants, and bars which has appeared in the pages of *Architectural Record*. The editors' dual purpose is to demonstrate the strong bond that exists between good design and good business, and to help architects plan commercially profitable establishments for their clients.

In these pages are 518 illustrations and plans of successful establishments where well-planned and practical design has paid off in flourishing trade and satisfied clientele. The accompanying text discusses the unique design problems, and their solutions, associated with these types of commercial enterprise.

The section on Motels, for example, explains how choice of a site must take into account traffic density and direction, proximity of recreational centers and other tourist attractions, nearby competition, and even what kind of people the motel will serve. Again, physical design must strike a balance between lavishness and stark simplicity, either of which may scare away prospective customers. Scores of pointers on these very real problems are given clearly and briefly—information of tremendous value to the architect whose job is to design a profit-making establishment.

Each case-study is well illustrated with exterior and interior photographs, finely detailed site plans, floor plans, structural elements, and interior design features, just as they were created by some of America's most talented architects and designers. From the mass of available material, the editors selected for presentation only those establishments which embody the best in site selection, exterior design, structural framing and interior decor.

Motels, Hotels, Restaurants and Bars is a book that merits the most attentive study by every architect who hopes to capitalize on expert knowledge when planning one of these structures.

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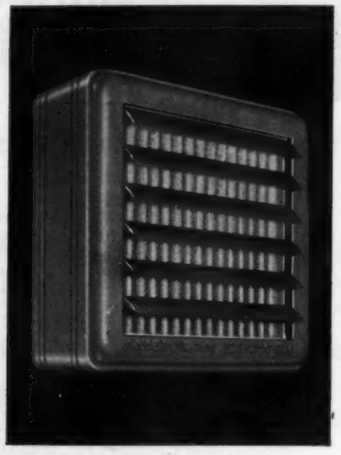

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THE RECORD REPORTS

WASHINGTON

(*Continued from page 308*)

and 10 per cent for overseas projects. The Senate committee, in cutting back a five per cent increase voted by the House, noted that "no convincing evidence has been presented that this language is unreasonably restrictive."

SPECIAL DESIGN STUDIES AIM AT BETTER BUILDING

Sounder military design and construction practices are the objective of a series of studies now under way at the direction of Assistant Secretary of Defense (properties and installations) Franklin G. Floete.

Three of seven scheduled reviews already have been completed and the others are expected soon, the Department of Defense has announced. In addition, other military construction practices may be reviewed.

Three Are Complete

The studies recently completed and consultants submitting them are: Electrical Distribution Systems, Emergency Generating Facilities and Stand-by Power Practices, by C. Warren Bogan, consulting engineer, Washington, D. C.; Water Supply Policies, by Ernest Boyce, chairman of the Department of Civil Engineering, University of Michigan; Air Conditioning for Hospitals, by Thomas H. Urdahl, consulting engineer, Washington, D. C.

Studies yet to be completed include: Sewage Practices, by Harold Thomas Jr., Harvard University, Cambridge, Mass.; Fire Protection Policies, by John J. Ahern, Director, Department of Fire Protection and Safety Engineering, Illinois Institute of Technology, Chicago, Ill.

Two additional studies, requiring more detailed research, are being performed by architect-engineer firms. Giffels and Vallet, Detroit, are conducting a review of warehouses and warehouse facilities (see May, page 12) and Parsons, Brinckerhoff, Hall and MacDonald, New York City, have started a study of airfields and airfield facilities.

"Purpose of this review of design criteria and military construction practices of the three military services is to evaluate the adequacy and effectiveness of present practices, determine varia-

(*Continued on page 314*)

NEW

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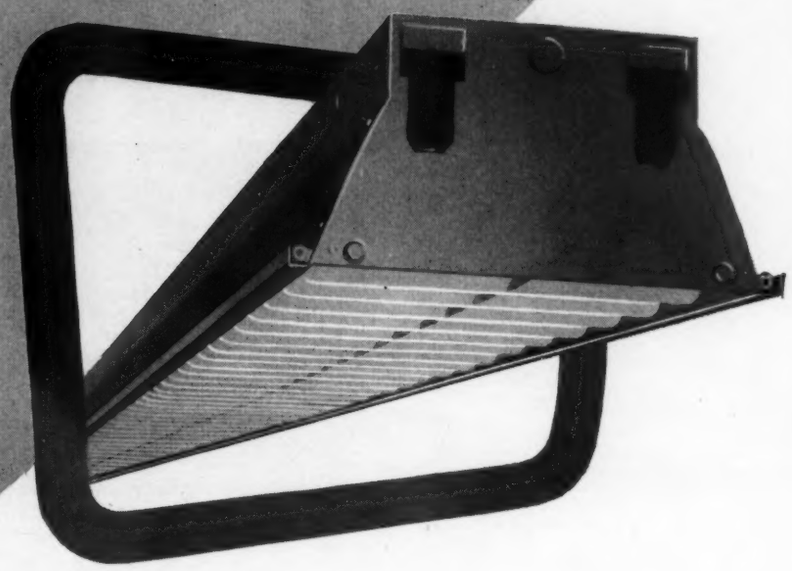

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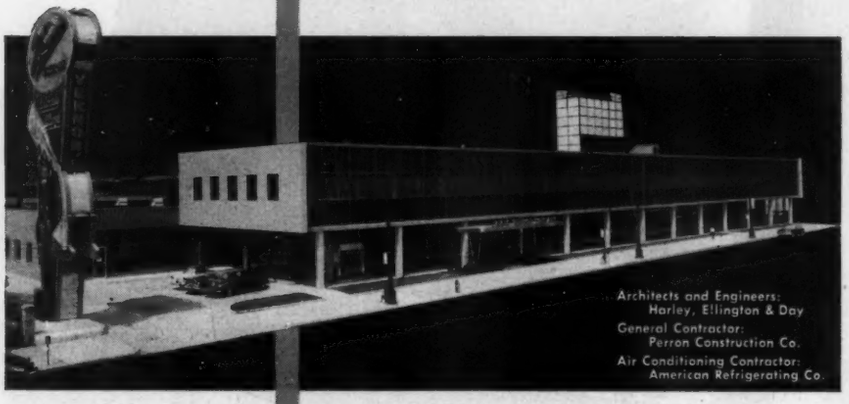
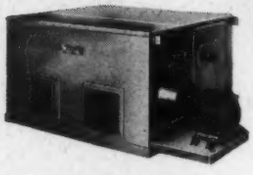
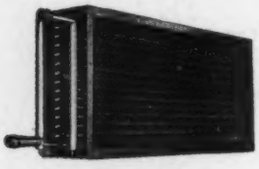
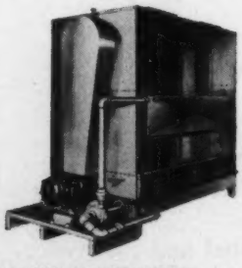




MARLO AIR HANDLING UNITS



MARLO COILS



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THE RECORD REPORTS

WASHINGTON

(*Continued from page 312*)

tions among the services, provide comparison with accepted commercial practice and recommend appropriate corrective measures," Fred Poorman, chief of the technical division, explains.

TAX LAW MAY SPARK INCREASE IN BUILDING

A large volume of new building as well as renovation work is expected to result from terms of the new tax revision law.

Industrial plants, stores, rental housing equipment, and all other "depreciable assets" can benefit from a faster tax-write-off provision intended to reduce investment risks, increase available working capital and generally aid smaller firms in the financing of their construction projects.

A depreciation clause permits an industrial plant to use the "declining balance" method of computing taxes. This allows twice the percentage under the former straight line method to be deducted each year, the percentage applied to the unamortized balance rather than to the original cost. Thus, a plant can write off approximately two thirds of the cost of an asset in half its life instead of half the cost in the same period.

Any business so computing its taxes could switch at any time back to the straight line method, or any other permitted schedule, provided that the accumulated depreciation allowances for property at the end of each year did not exceed allowances under the declining balance formula. The new provisions apply only to new property acquired or constructed after December 31, 1953.

GEODESIC DOMES TESTED FOR MARINES SHELTERS

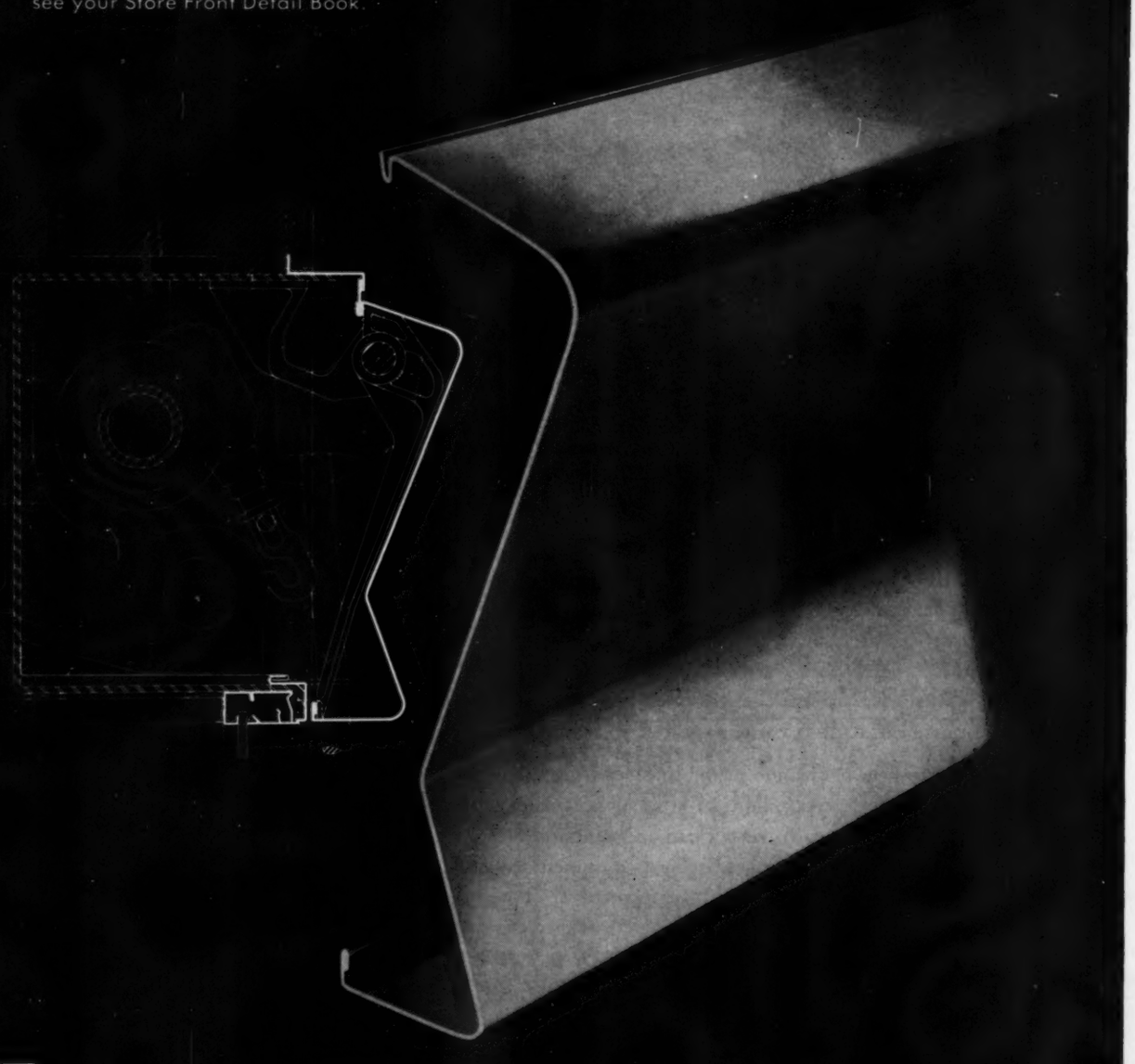
Six geodesic domes developed for the U. S. Marine Corps in architectural student projects directed by R. Buckminster Fuller, inventor of the structural principle they employ, were tested in a demonstration at Quantico, Va., last month (see June, p. 24 *et seq.* for a description of the research).

Col. Henry C. Lane, Marines head of aviation logistics, said the research, so far undertaken by Mr. Fuller at no cost to the Marines, indicates that the geodesic domes can be adapted for use as Marines advance base structures to replace the present three-phase housing procedure

(*Continued on page 316*)

New Pittco NO. 90 Awning Bar

. . . combines beauty and function. The photograph shows how the profile creates a pleasing balance of light and shadow. The Pittco No. 90 Awning Bar will give added character to a store front, window or entrance. Factory or field fabricated. For complete information, see your Store Front Detail Book.



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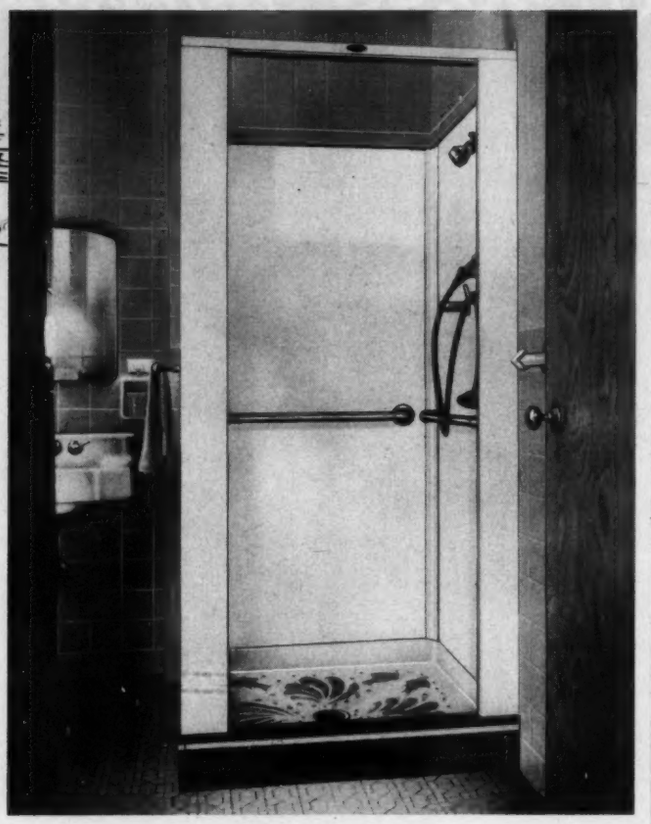

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(*Continued from page 314*)

of erecting tents, improving tents and, finally, building the more permanent Quonsets, at enormous savings in cost, shipping weight and cubage, and man-hours required for erection.

Results of the initial study are regarded by the Marines as "so favorable," said Colonel Lane, that they will now be pursued by the Marines Research and Development section into a second or prototype stage. Prototypes developed will be submitted to the Marine Corps Development Center for testing.

The Navy Bureau of Aeronautics has negotiated a design contract with Mr. Fuller to produce detailed designs for a 114-ft, six-plane hangar and a 36-ft aircraft maintenance shop. This work is being carried on by "Fuller Research and Development" at Raleigh, N. C. (see August, page 16).

Architectural schools participating in the Marines project included those at the University of Michigan, Tulane University, Virginia Polytechnic Institute, North Carolina State College, Cornell University and the Massachusetts Institute of Technology. Industry cooperated by contributing materials.

ODM ASKS U. S. AGENCIES FOR DISPERSION SURVEYS

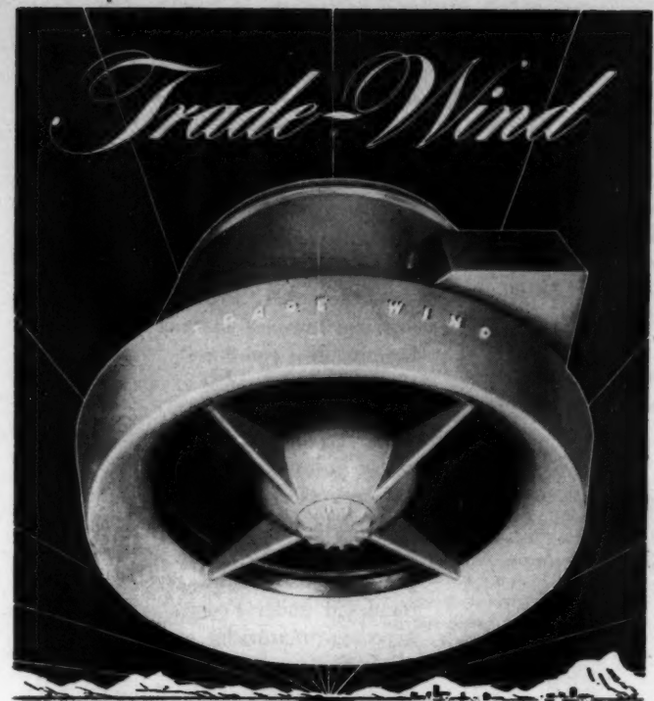
New attention is focusing on plant dispersion to reduce target vulnerability in event of enemy attack. The Office of Defense Mobilization stirred this subject recently when it announced that it had asked all Federal government departments and agencies to survey critical facilities under their jurisdictions. These agencies will discuss with industry representatives what moves could be made to lessen commercial and industrial concentration.

Another stimulant to the dispersal of plant capacity is the rapid tax amortization plan unveiled by ODM some time ago. This program is an open incentive to industry to move vital facilities now concentrated in dense areas that make prime targets.

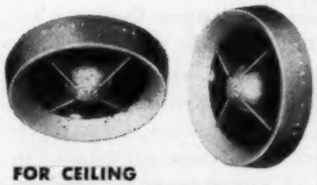
Applications for these benefits should not be filed with the ODM until after the would-be applicants have discussed their particular problems with the Federal agency that normally deals with them, it is stressed.

(*More news on page 322*)

Trade-Wind



AXIAL FLOW VENTILATOR



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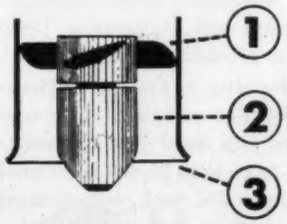

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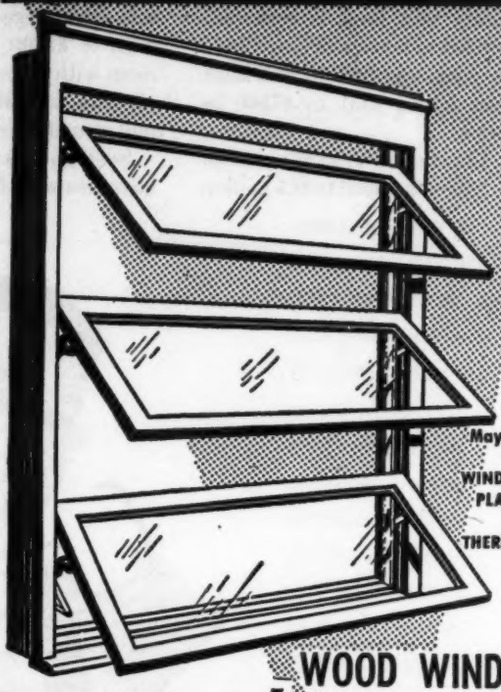

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NEW HOUSING LAW

(*Continued from page 12*)

rate is five per cent with authority in the Commissioner to raise to six if necessary to meet the mortgage market.

Section 207 — Rental Housing. $10,000 family unit limit is removed. FHA authorized to boost mortgage limit of $2000 per room up to $3400, and limit of $7200 per family unit to $7500 in elevator types.

Co-ops. Limit of $5 million on cooperative mortgages is upped to $25 million where mortgagor cooperative is regulated by Federal or state law as to rents, charges and methods of operation. Ceilings on mortgages on non-veteran projects are changed from $8100 per family unit, or $1800 per room, to $2250 per room with a per family top of $8100 applicable only if number of rooms per unit is under four.

Section 220. Authorizes FHA mortgage insurance for rehabilitation of existing dwellings and construction of new ones in slum clearance and urban renewal areas where Federal aid is being extended under Title I of the Housing Act of 1949. Except as to existing Title I projects, communities are required to have an approved workable program for prevention and elimination of slums and blight.

Section 221. Provides FHA insurance for low-cost housing for displaced families in a community where Title I slum clearance and urban redevelopment programs are in effect. Maximum mortgage amount is $7600 or $8600 in high-cost areas and 95 per cent of value. Also covers repair or rehabilitation or construction of dwellings for rent if the mortgagor is a private nonprofit corporation, associaton, or organization, regulated under Federal or state laws. Mortgage maturities cannot exceed 30 years or three fourths of the estimated remaining economic life of the property, whichever is lesser.

Section 225 — Open-End Mortgages. FHA can insure advances to a mortgagor. Outstanding balance of a mortgage can be increased to advance additional loan funds for improvements, alteration, or repair of the house covered without executing a new mortgage. Insured advances are limited to those which protect or improve the basic livability or utility of the property. They will not be insured if, when added to the unpaid mortgage amount, the total exceeds the original amount of the mortgage, unless the advance will be used to construct additional rooms or other enclosed space as a part of the dwelling.

Title III — FNMA. The Federal National Mortgage Association is rechartered so that private investment gradually will be substituted for Federal investment in the association's capitalization, and in funds for purchase of mortgages. Under the new charter, Fannie Mae will provide a secondary market for FHA and VA mortgages, assist special housing programs such as Section 221, and liquidate the portfolio of mortgages held by FNMA prior to its new charter. A voluntary home mortgage credit program will supplement these operations in providing credit.

Public Housing — The Public Housing Administrator can make new contracts during this fiscal year for assistance to not more than 35,000 additional public housing units. Such projects must be located where a community is carrying out a slum clearance and urban redevelopment program, or urban renewal

(*Continued on page 320*)

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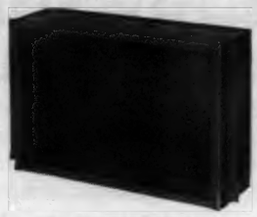

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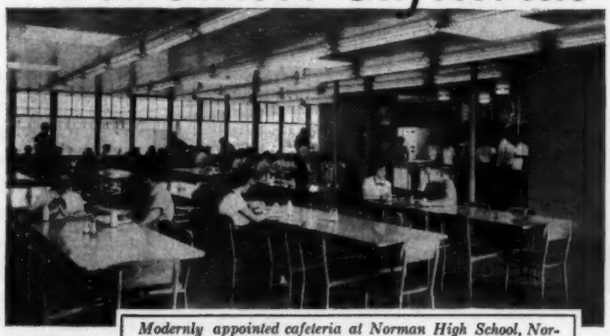
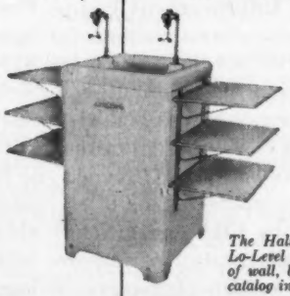
For School Cafeterias



Modernly appointed cafeteria at Norman High School, Norman, Okla. ARCHITECTS AND ENGINEERS: *Caudill-Rowlett-Scott, Bryan, Tex., and Perkins & Will, Chicago.* *(Hedrich-Blessing Photo)*



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NEW HOUSING LAW

(*Continued from page 318*)

project, with assistance under Title I of the 1949 act. Communities receiving the aid must certify that the low-rent public housing is needed to assist in meeting the relocation requirements of displaced families.

Urban Planning. HHFA can make planning grants to state planning agencies for them to assist cities of less than 25,000 in their planning activities. Grants also are authorized to official state, metropolitan, or regional planning agencies empowered under state or local laws to perform planning work in metropolitan and regional areas. Grants will be used to assist surveys, land-use studies, urban renewal plans, and technical services.

Public Works Plan Reserve. This resumes the old advance planning program of the Federal Works Agency days which attempted to build up a "shelf" of planned non-Federal public works ready to go when economic conditions dictated. The new authority expires July 1, 1957, with $10 million authorized.

Public Facility Loans. This renews the old Reconstruction Finance Corporation program of loans and securities purchases aimed at helping cities finance such installations as waterworks, sewers, streets, etc. These loans, unlike the interest-free planning advances, would bear interest.

Builders' Warranty. FHA and Veterans Administration are told by the law to require builders or sellers of new homes to give the purchaser or owner a warranty that it is constructed in substantial conformity with the plans and specifications on which the FHA or VA valuation was based.

College Loans Interest. The interest rate on college housing loans will henceforth be determined on the basis of the going Federal rate in effect at the time the loan is approved by the administrator, instead of the time the loan is executed.

Veterans' Open-End. Maximum veterans' home loan guaranty entitlement of $7500 is made applicable to loans for repairs, alterations, and improvements as well as to loans for purchase and construction of homes. To be eligible for open-end privileges, the planned repairs must substantially protect or improve the basic livability or utility of the property involved.

Defense Housing, Community Facilities. The President is given standby authority up to July 1, 1955, to designate periods when Title III of the Defense Housing and Community Facilities and Services Act of 1951 can be used to provide Federal aid in the provision of defense housing and community facilities and services in critical defense areas. The President also can designate a specific project or projects to be assisted.

Title I Improvement Loans. Present maximum limits continue for home repair: $2500 for three years, and $10,000 for seven years on multi-unit dwellings. Insurance now is limited to reimbursement of 90 per cent of the loss on any individual loan. Program is restricted to supervised and other lenders approved by FHA and to items which substantially protect or improve basic livability or utility of property. No loans can be made on new houses until they have been occupied for six months. Multiple loans on the same structure cannot exceed the statutory dollar limitation, $2500. The new restrictions are effective September 1, 1954.

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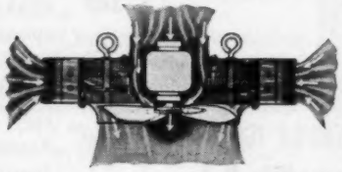

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THE RECORD REPORTS

(*Continued from page 316*)

ON THE CALENDAR

September

1–6 Golden Jubilee Meetings, International Electrotechnical Commission — University of Pennsylvania, Philadelphia

4ff Fall Architects Trek to Spain, Italy, Greece, Egypt and France, under the leadership of Edmund Purves, F.A.I.A.; through Oct. 7

9–19 Sixth Annual National Home Furnishings Show — 71st Regiment Armory, 34th St. at Park Ave., New York

13–14 The 33rd Annual Fall Meeting, The Producers' Council — Hotel Commodore, New York City

13–16 Annual convention and architectural exhibit of hospitals, American Hospital Association — Navy Pier, Chicago

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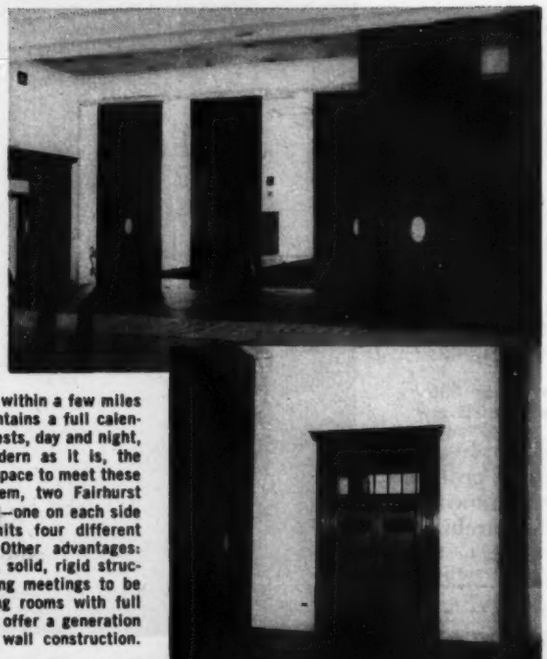
Architect: Schuman & Lichtenstein, N. Y.

2 Fairhurst Unitslide Walls permit maximum use of space areas in this up-to-date community center

Top: one wall, closed. Right: shows walls, units partly opened. Bottom: Head-on view shows one wall in place, other folded into pocket. Walls consist of 6 units, each 6' wide, 15' high, faced with Honduras Mahogany and Walnut.



To serve a large suburban community within a few miles of New York City, Temple Isaiah maintains a full calendar of activities for all ages and interests, day and night, throughout the week. Large and modern as it is, the Temple required utmost flexibility of space to meet these heavy demands. To solve the problem, two Fairhurst Unitslide Folding Walls were installed—one on each side of the entrance corridor. This permits four different arrangements of auditorium space. Other advantages: smooth, quick operation of the walls; solid, rigid structure; high sound retardance permitting meetings to be conducted simultaneously in adjoining rooms with full privacy; striking beauty of finish. We offer a generation of specialized knowledge in folding wall construction.

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13–17 National Technical Conference, Illuminating Engineering Society — Chalfonte-Haddon Hall, Atlantic City, N. J.

15 Chapter Presidents' Conference, The Producers' Council — Hotel Biltmore, New York City

19–26 National Home Week: a nationwide observance sponsored by the National Association of Home Builders

26–28 Regional Conference, Gulf States District, American Institute of Architects — Marion Hotel, Little Rock, Ark.

26–30 Annual Meeting, American Society of Planning Officials — Benjamin Franklin Hotel, Philadelphia

27–30 Annual Meeting, Institute of Traffic Engineers — Hotel Muehlbach, Kansas City, Mo.

28ff 1954 Iron and Steel Exposition, sponsored by Association of Iron and Steel Engineers; through Oct. 1 — Public Auditorium, Cleveland

29ff Annual Meeting, Porcelain Enamel Institute; through Oct. 1 — The Greenbrier, White Sulphur Springs, W. Va.

29ff The 19th Annual Conference, International Association of Electrical Leagues; through Oct. 2 — Bellevue-Stratford Hotel, Philadelphia

30ff Annual convention, California Council of Architects; through Oct. 2 — Hoberg's, Lake County, Cal.

October

84th Annual Congress of Correction — Bellevue-Stratford Hotel, Philadelphia

2–10 "Better Homes for a Better America": an exposition sponsored by the National Retail Lumber Dealers Association — Kingsbridge Armory, New York City

5–7 The 57th Annual Convention, National Hardwood Lumber Association — Houston, Tex.

11–14 The 21st Annual Conference and Building and Maintenance Exhibit — Bellevue-Stratford Hotel, Philadelphia

11–15 Fall General Meeting, American Institute of Electrical Engineers — Morrison Hotel, Chicago

13–17 Annual convention, Audio Engineering Society — Hotel New Yorker, New York City

(*Continued on page 324*)

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Frick Company recently completed the engineering and installation of a year 'round comfort air conditioning system for the new office annex of the Fairchild Aircraft plant in Hagerstown, Md., where they manufacture their famous C-119 Flying Boxcars.

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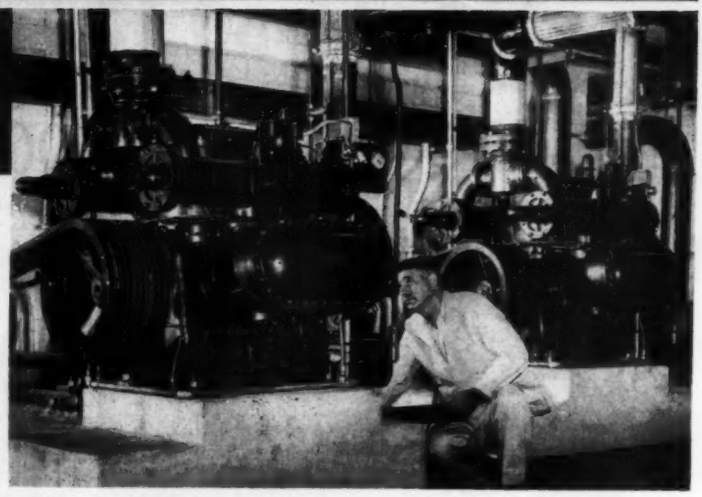

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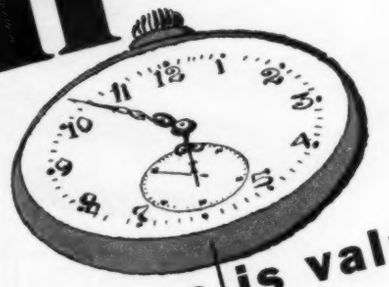

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THE RECORD REPORTS

(*Continued from page 322*)

14–15 Annual Meeting, American Council on Education — Chicago

14–16 Annual Convention, Architects' Society of Ohio — Biltmore Hotel, Dayton

15–16 Second Annual Convention, Architectural Woodwork Institute — La Salle Hotel, Chicago

17–22 Semiannual Meeting, Society of Motion Picture and Television Engineers — Ambassador Hotel, Los Angeles

18–20 Annual Convention, American Association of Nursing Homes — Seelbach Hotel, Louisville, Ky.

18–20 Annual Convention, Florida Association of Architects — La Coquille Hotel, Palm Beach, Fla.

18–22 The 42nd National Safety Congress and Exposition — Hotels Conrad Hilton, Morrison and LaSalle, Chicago

21–23 Annual Convention, New York State Association of Architects — Lake Placid Club, Lake Placid, N. Y.

21–23 Central States Regional Conference, American Institute of Architects — Wichita, Kans.

25–28 The 32nd Annual Convention, American Institute of Steel Construction — The Greenbrier, White Sulphur Springs, W. Va.

27–28 The Uses of Plastics in Building: a conference sponsored by the Building Research Institute, with the Manufacturing Chemists' Association, the Society of the Plastics Industry and the Building Research Advisory Board — National Academy of Sciences, Washington, D. C.

28–29 Seventh Regional Meeting, American Concrete Institute — Statler Hotel, Los Angeles

28–30 Annual Meeting, Minnesota Society of Architects — Rochester, Minn.

28–30 North Central Regional Conference, American Institute of Architects — Kohler Hotel, Rochester, Minn.

31ff National Association for Mental Health; through Nov. 2 — Hotel Carter, Cleveland

November

1–5 National Fall Meeting, American Welding Society — Sherman Hotel, Chicago

3–5 Annual Convention, Texas Society of Architects — Texas Hotel, Fort Worth, Tex.

3–6 Annual Meeting, American Council of Commercial Laboratories — Roosevelt Hotel, New Orleans

8–12 The 39th National Hotel Exposition — Kingsbridge Armory, New York City

10–12 Short Course on Church Architecture, offered by the Department of Architecture, College of Fine and Applied Arts — University of Illinois, Urbana

10–12 The 18th National Time and Motion and Management Clinic, Industrial Management Society — Hotel Sherman, Chicago

15–16 Fall Meeting, National Building Material Distributors Association — LaSalle Hotel, Chicago

15–16 Fifth National Conference on Standards, American Standards Association — Hotel Roosevelt, New York City

(*Continued on page 326*)

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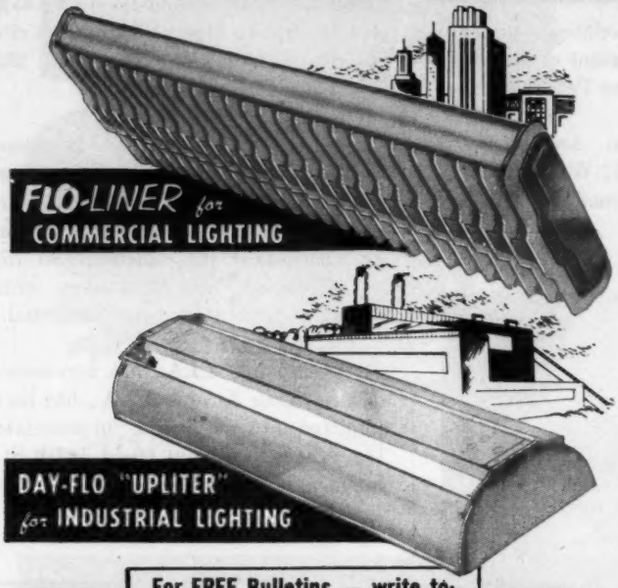

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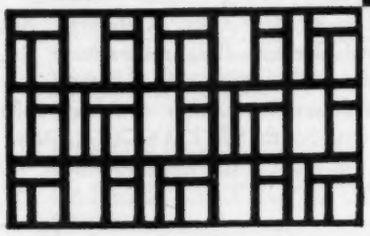

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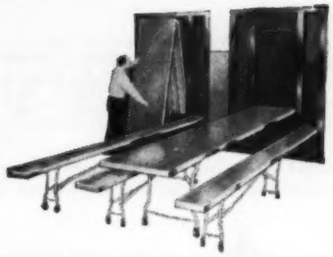

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 (*Continued from page 324*)

28ff Annual Meeting, American Society of Mechanical Engineers, through Dec. 3 — Statler Hotel, New York

29ff First International Automation Exposition: exhibit on automatic machines, factories and industries under the direction of Richard Rimbach; through Dec. 3 — 242nd Coast Artillery Armory, 14th St. off Sixth Ave., New York

OFFICE NOTES

Offices Opened

• Bernard Hersh, Architect, has announced the establishment of his offices at 507 Boulevard, East Paterson, N. J.

• John W. Robertson, Architect, has opened an office at 42 Wexford Road, De Witt, N. Y. The mailing address is P. O. Box 141.

Firm Changes

• Burns and Roe, Inc., Engineering Consultants, recently announced the election of Kenneth A. Roe as executive vice president. The firm's offices are at 233 Broadway, New York 7, N. Y.

• Leigh Hunt, F.A.I.A., has announced his association with Fritz Von Grossman, A.I.A., in offices at 4630 W. Burleigh St., Milwaukee, Wis. Mr. Hunt will continue in his own office, at 759 N. Milwaukee St., Milwaukee, until current projects have been completed.

• Samuel Paul, A.I.A., has announced that Seymour Jarmul, A.I.A., has been admitted into the firm as an associate. The firm is located at 89–51 164th St., Jamaica, L. I., N. Y.

New Addresses

Thomas R. Fahey, A.I.A., 3770 Lowell Blvd., Denver 11, Colo.

James C. Gardiner, A.I.A., 3770 S. W. Multnomah Club Rd., Portland 1, Ore.

Grix & Mueller, Architects & Engineers, Administration Building, Washington Terrace, Ogden, Utah.

Dorothy Gray Harrison, Architect, 1041 E. Green St., Pasadena 1, Cal.

David G. Haumerson, Architect, P. O. Box 964, Scottsdale, Ariz.

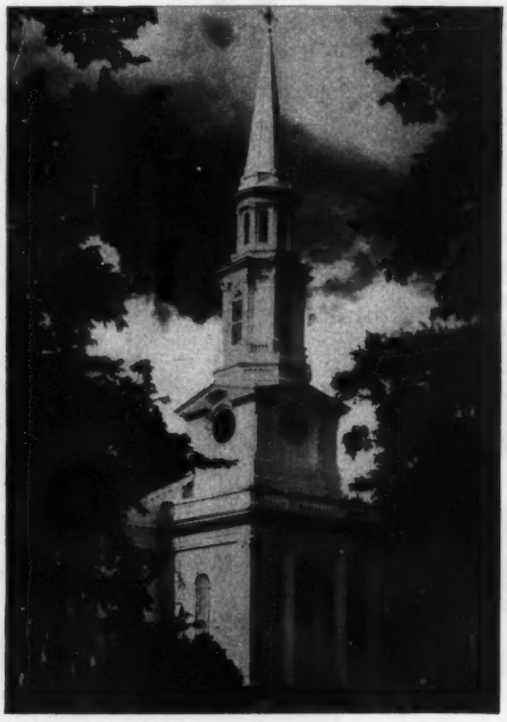
Alfred W. Johnson, A.I.A., 165 Jessie St., San Francisco 5, Cal.

Leavitt & Spieth, Architects, 814 Ninth-Chester Bldg., Cleveland 14, Ohio.

William Rowe Smith, Architect, 1555 E. 39th South, Salt Lake City 6, Utah.

(*More news on page 328*)

Old North Congregational Church, Ipswich, Mass., erected in 1846, is rare example of wood Gothic. Old North dates back to about 1634.



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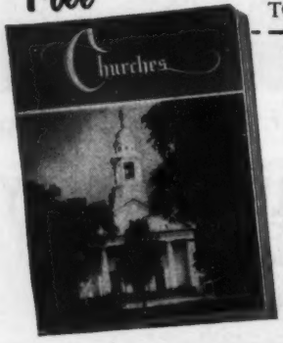

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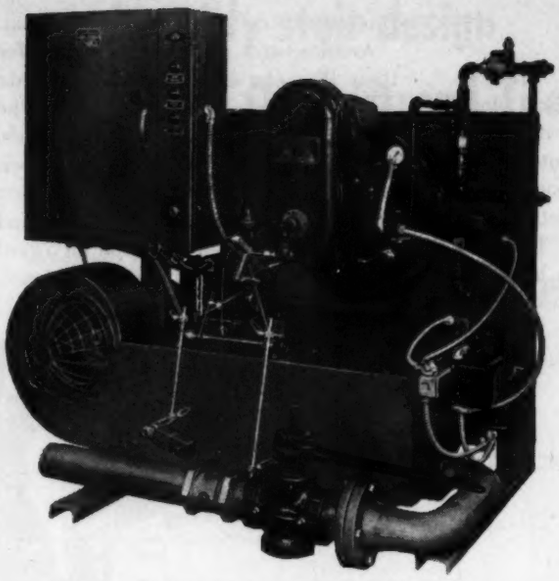
CORRECTION

Of the 5500 acres of undeveloped land which Stanford University has scheduled for varied development, 4890 have been allocated for single-family residential use, according to figures recently announced by the University. The map on page 153 of the July issue of the RECORD indicated erroneously that a high proportion of the undeveloped lands was to be devoted to light industry. Actually it is the acreage remaining after allotment for residences that is to be divided between light industry and commercial projects.



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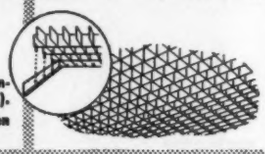

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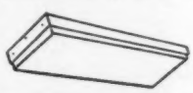

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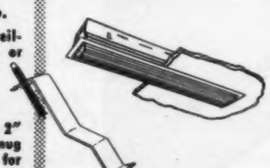

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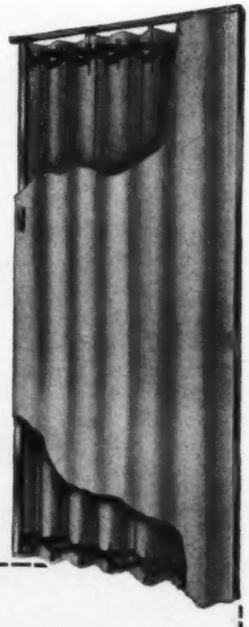

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 (*Continued from page 326*)

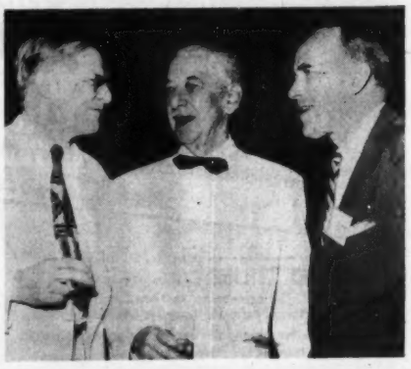
"WILLIAMSBURG BLIGHT" UNDER FIRE ONCE MORE

The "Williamsburg blight" again came under fire when Orin M. Bullock addressed assembled members of the American Institute of Architects' Virginia Chapter at their spring meeting. Mr. Bullock, who is A.I.A. State Preservation Officer for Virginia and Supervisor of Architectural Research for Colonial Williamsburg, said that the restoration was intended for research, not for copy.

Far away in time and thought from Williamsburg was the subject of Buckminster Fuller's speech; Mr. Fuller discussed the prototype domes he has designed for the Marine Corps. Other speakers were Roger Allen, F.A.I.A., Grand Rapids, Mich., and Douglas Haskell, editor of *Architectural Forum*.

Architectural prizes department: for their Roanoke Public Library, Frantz and Addkison, Roanoke, received the Chapter Award; Joseph H. Saunders, Alexandria, won an award of merit for his National Education Association Building, to be built at Washington; and Marcellus Wright & Son won an award of merit for the Noland Residence, Warwick.

Above; left to right: Col. R. B. Warren, Norfolk District Engineer; Paul D. Woodward, President, Virginia Chapter; and Capt. A. J. Fay, Fifth Naval District Public Works Officer



Above, left to right: C. W. Cowgill, dean of architecture at Virginia Polytechnic Institute; Roger Allen, F.A.I.A., principal speaker at the meeting; and Marcellus Wright Jr., Director of Middle Atlantic Region, A.I.A. Below: a thoughtful Bucky Fuller addresses the meeting

(*More news on page 332*)

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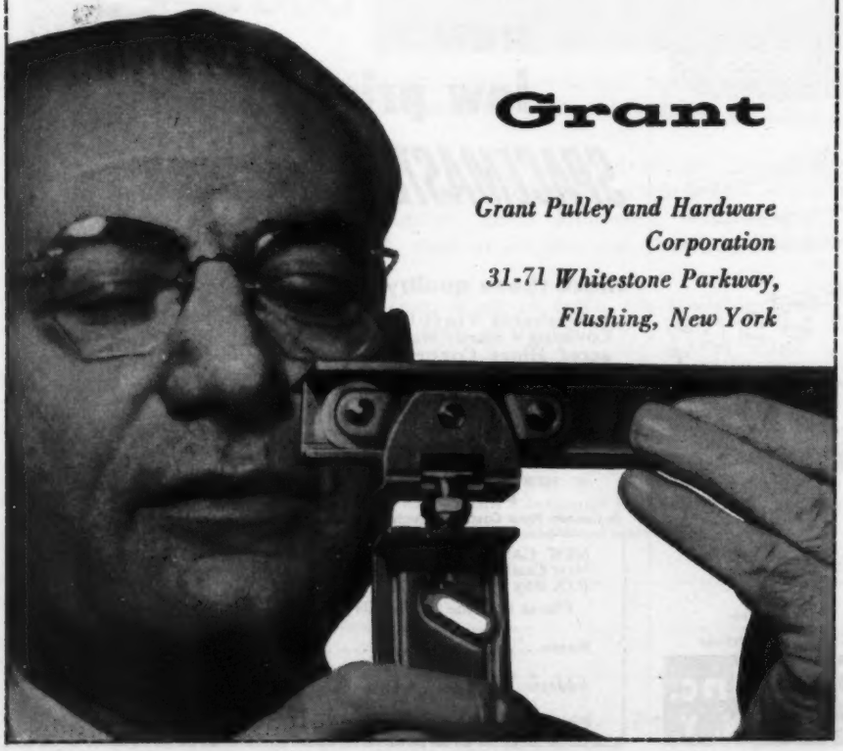

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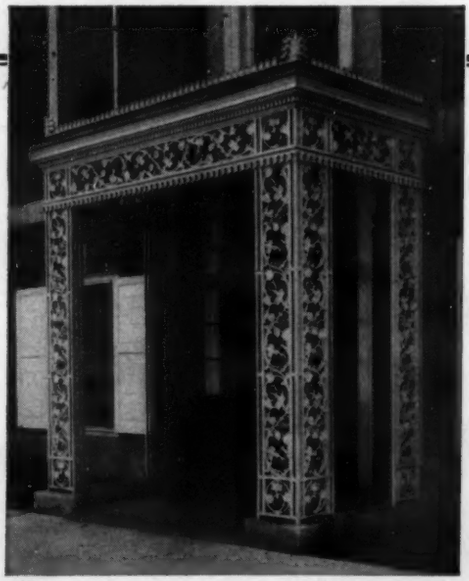

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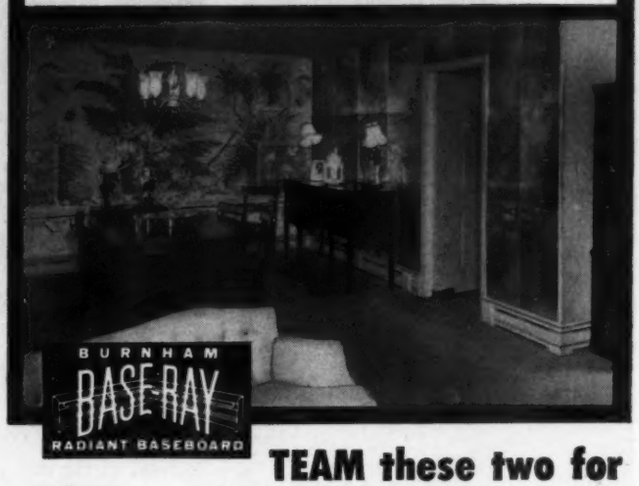

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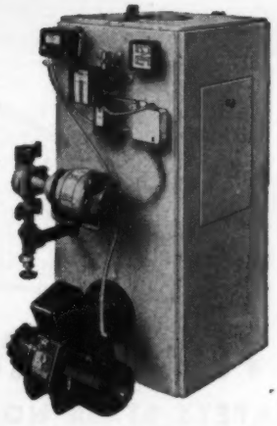

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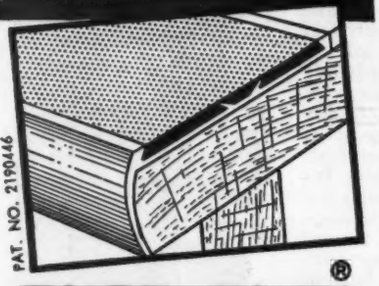

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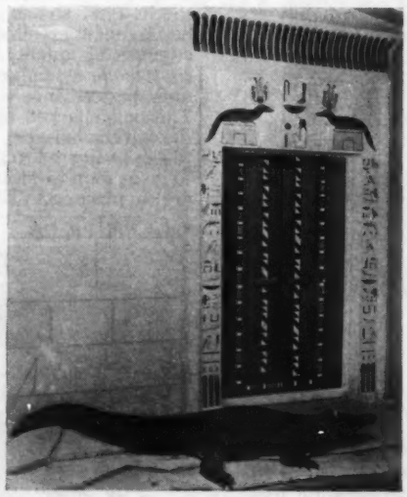
THE RECORD REPORTS

(*Continued from page 328*)

REPTILES AT BRONX ZOO MOVE INTO NEW QUARTERS

Each of the 423 residents at the recently renovated reptile house at New York's Bronx Zoo got custom-made display cages, designed to show off their qualities to the best advantage, and to cater to their individual tastes in matters of temperature and humidity. The cages were planned to "trick" the snakes into staying within the view of visitors, and nervous snakes are displayed behind "one way glass."

Architects for the project were Edward C. Embury and Nicholas K. Lucas, with Aymar Embury II as consulting architect. Architect Harmon H. Goldstone designed the exhibits, assisted by Teresa Kilham, color consultant, and Edward S. Maps, sculptor.



Egyptian temple door in Nile crocodile's cage is inscribed with authentic invocation to Sobek, the alligator god, from the Book of the Dead

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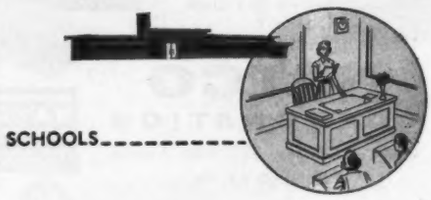
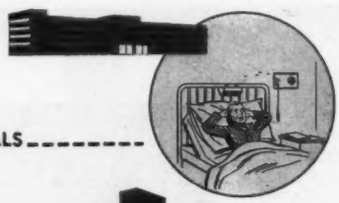
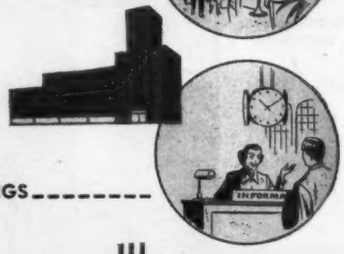

SCHOOLS


HOSPITALS

HOTELS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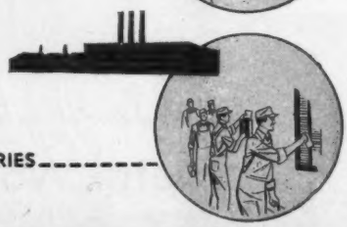
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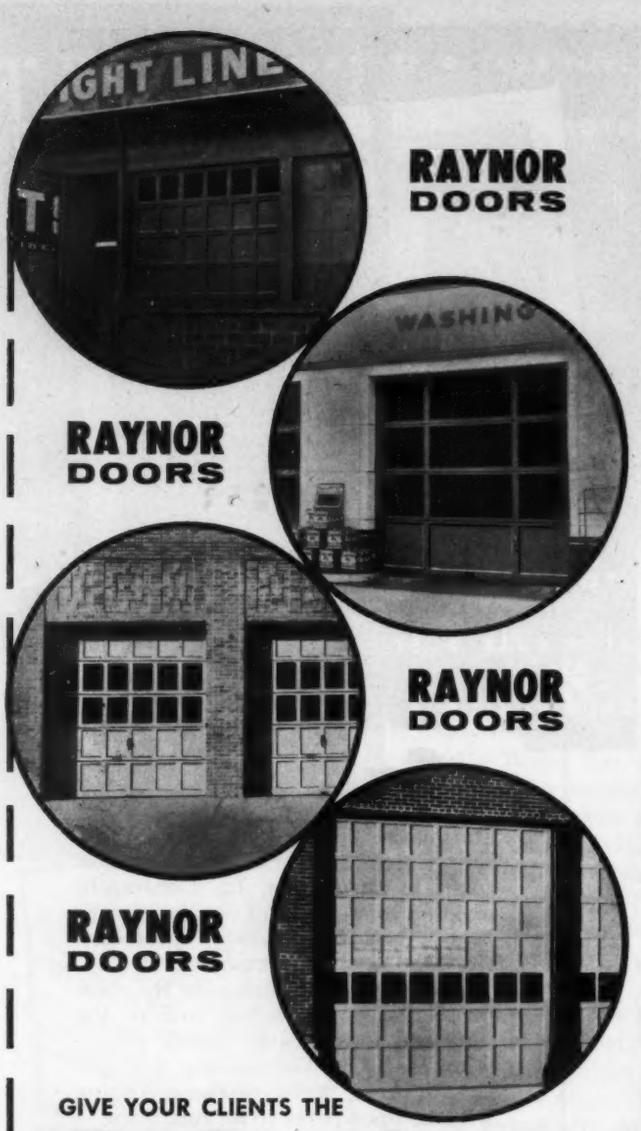

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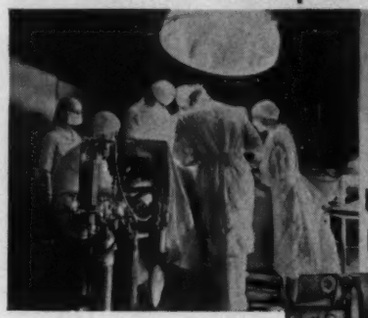

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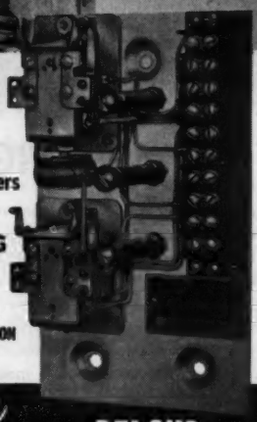

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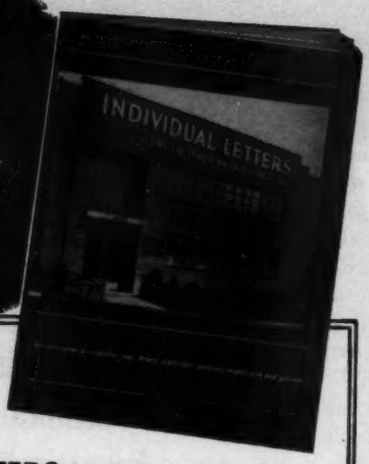

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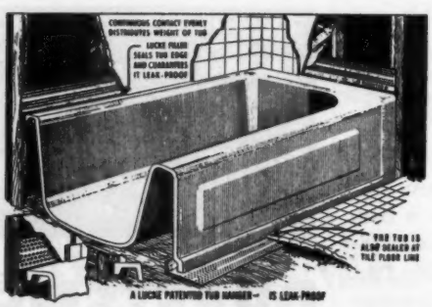
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REQUIRED READING

(*Continued from page 48*)

graphers who, in the author's words — "Reassert the final claim of the human element in art; the sense of the contact between surface and medium; the empirical cultivation of an artifact during the process of its making; the kinaesthetic performance which in the act of painting involves not merely the eye and the mind, but the whole state of being of the artist in a manner analogous to that of the violinist or athlete." "The most dramatic statement of this view is to be found in the work of Jackson Pollock, who has gone so far as to eliminate the traditional contact of brush with canvas to emphasize the human measure of the viscosity of the medium, the very gesture of drawing form."

The author makes no attempt to bring us back to the art of stained glass which, being primarily a craft, must make use of the limitations placed upon it by the use of many tools and a variety of materials, a boon rather than a hindrance. He has taken us through the birth, decay and revitalization of an art and leaves us with three overwhelming questions: What does the creator do to his material? What does the act of creating do to the creator? And, what does a society want of what is thus created?

HISTORY OF ART SERIES

Architecture in Britain, 1530–1830. By John Summerson. The Pelican History of Art: Penguin Books (Baltimore, Md.) 1953. 7½ by 10½ in., 373 pp, illus. $8.50

REVIEWED BY JAMES S. HORNBECK, A.I.A.

As its predecessors in the Pelican History of Art series, this volume is both handsomely produced and bears the stamp of authoritative scholarship. Mr. Summerson's prose is incisive, interesting, skilfully handled, and deals quite adequately with the facts of a derivative period that is less than exciting for any but professionals. Our main regret was that the author's concern with the relationship of this architecture to its own society and to the roots of the renaissance idea was tentatively dealt with. Certainly, none will quarrel with Mr. Summerson's knowledge of the subject or his beautiful organization of it, but if architecture is not a social manifestation, then what can it be but a collection of examples, influences and dates?

(*Continued on page 338*)

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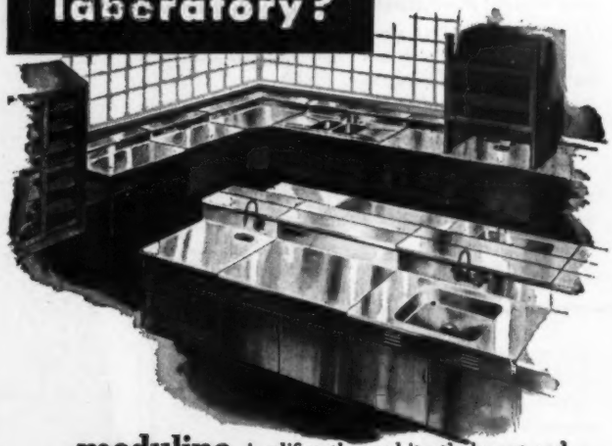

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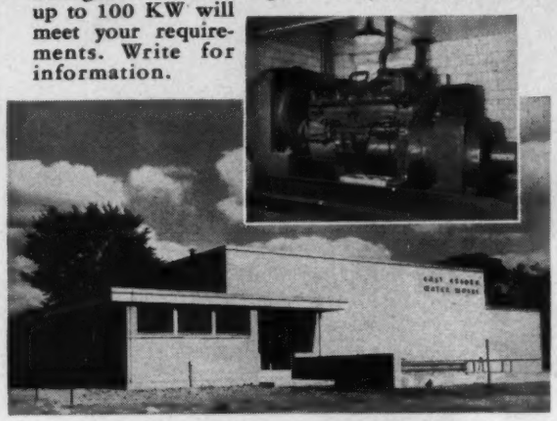

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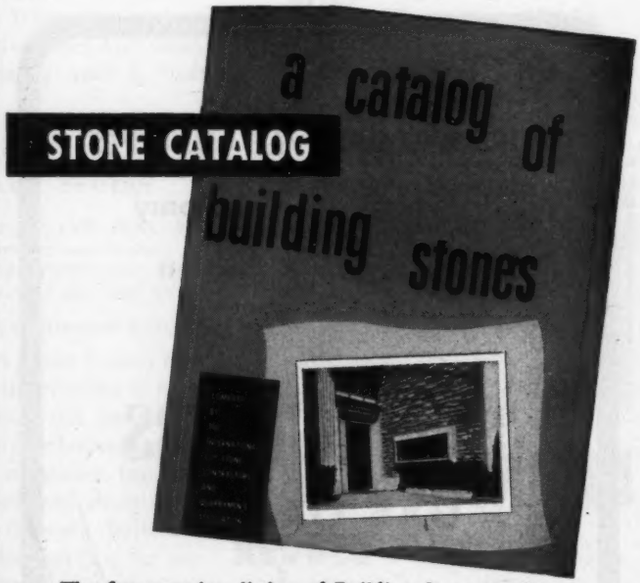

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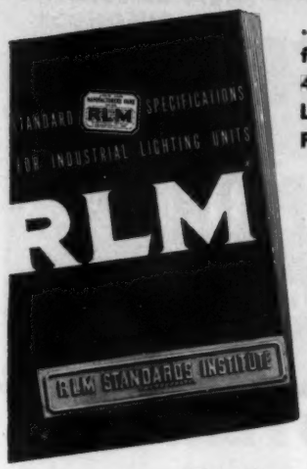

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(*Continued from page 334*)

The volume was awarded an honorable mention by the Society of Architectural Historians in their 5th annual competition.

BOOKS ON PAINT

• *Steel Structures Painting Manual. Edited by Dr. Joseph Bigos. Steel Structures Painting Council (Pittsburgh, Pa.) 1953. 8½ by 11 in. 432 pp. $6.00*

The first of two volumes of the *Steel Structures Painting Manual* has been prepared by a staff of specialists and edited by Dr. Joseph Bigos, Senior Fellow, Mellon Institute and Director of the Steel Structures Institute. In the 18 chapters are included such topics as: simplified theory of corrosion; mechanical surface preparation; chemical surface preparation; practical aspects, use and application of paints; inspection; quality control of paints; shop painting of steel in fabricating plants; protection of pipelines and other underground structures; painting of industrial plants; color in industrial plants and metallizing.

• *What You Should Know About Paint. By E. M. Fisher. Schnell Publishing Co., Inc. (New York, N. Y.) 1952 and 1953. 6¾ by 5½ in. 184 pp, illus.*

This pocket size volume is a technical work written with the aim to take the complicated technical terms and practices used in modern paint technology and reduce them to laymen's knowledge. Its contents include outside house paint; varnishes; other synthetic resins; color, hiding and pigment properties; white and extender pigments; color pigments; enamels, metal protection and the moisture problem.

HEATING, VENTILATING

Heating, Ventilating, Air Conditioning Guide, 32nd ed. American Society of Heating and Ventilating Engineers (62 Worth St., New York, N. Y.) 1954. 6 by 9 in., 1614 pp, illus. $10

Here is a 52-chapter volume with 1128 pages of technical data, a special chapter on residential summer air conditioning, and a 486-page manufacturers' catalog. ASHVE research and ASHVE-sponsored research is reported in most chapters, including those on Air Distribution, Heating Load, Fuels and Combustion, Chimneys and Draft Calculations, Panel Heating, Pipe, Fittings, Weldings, District Heating, Air Cleaning, Automatic Controls, Electric Heating, and Owning and Operating Costs.

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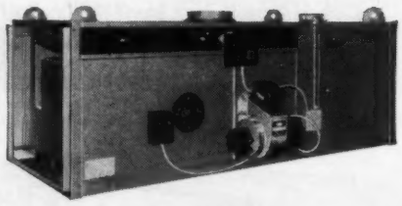

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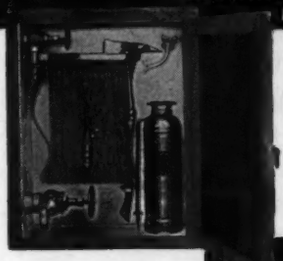

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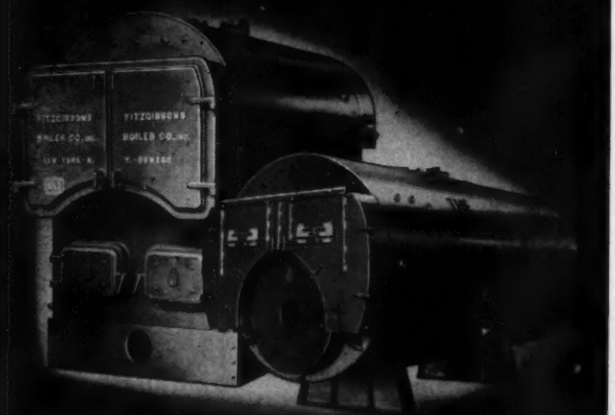

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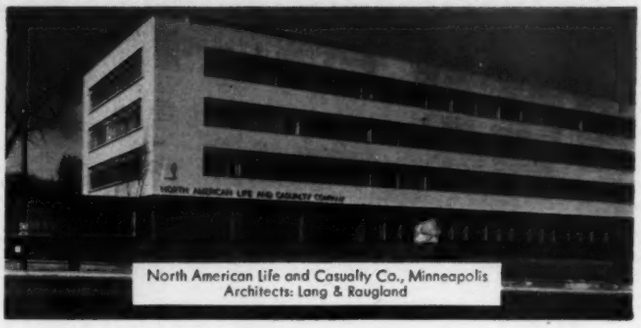

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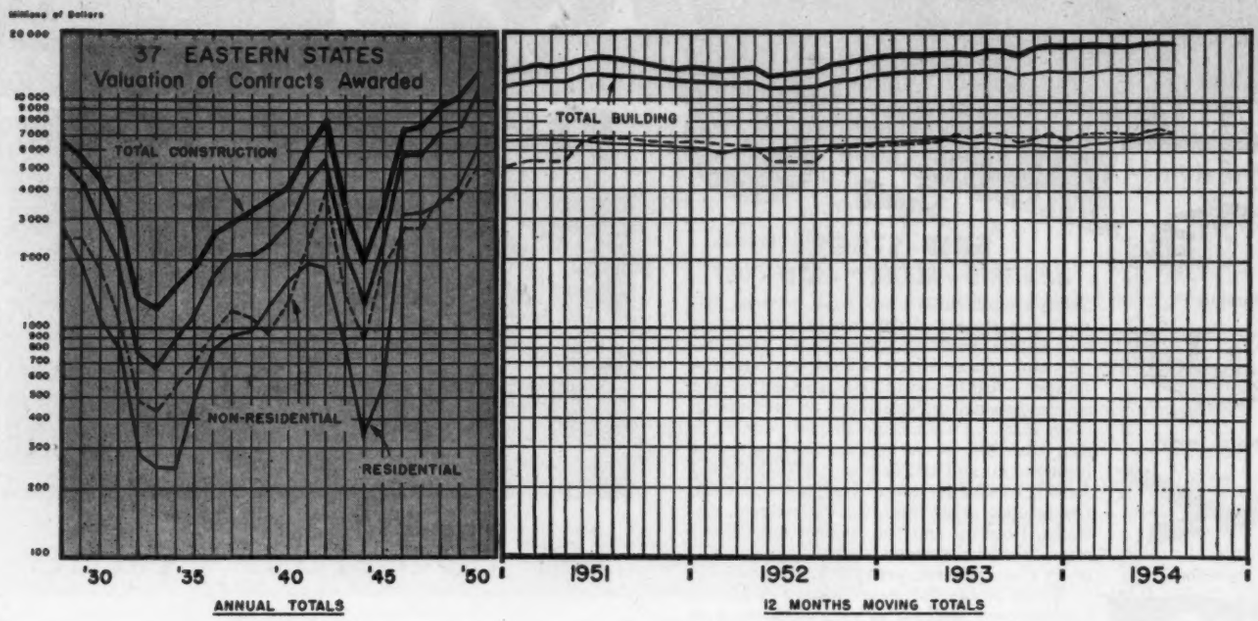
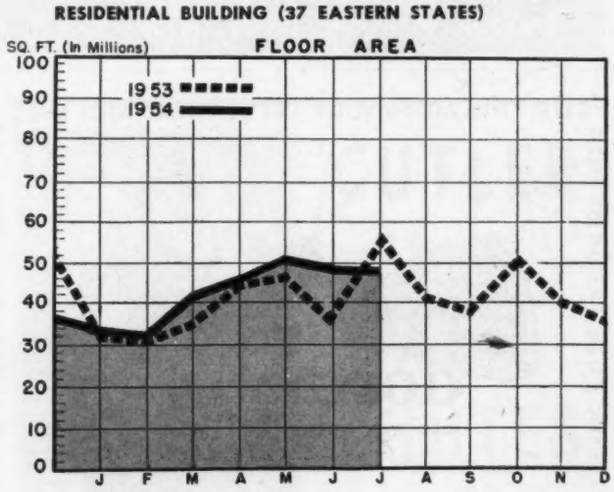
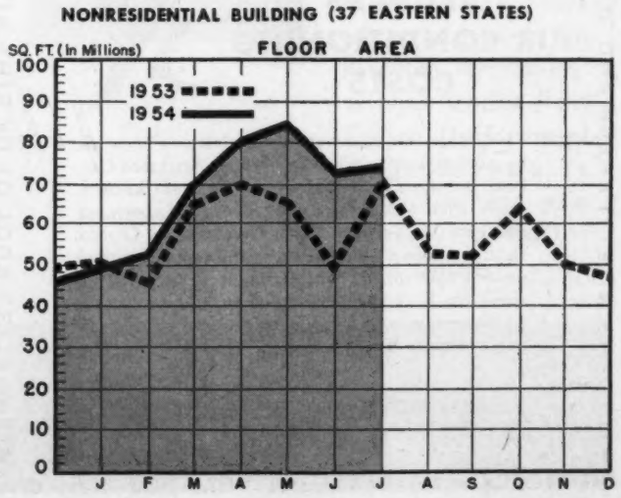


BOOM YEAR AT SEVEN MONTHS: STILL AHEAD

RESIDENTIAL BUILDING continued to lead, though by no means to dominate, the 1954 construction boom as F. W. Dodge Corporation announced its latest monthly tally of contracts awarded for future construction in the 37 eastern states. July figures brought the 1954 cumulative total dollar volume to $11,088,084,000, a new all-time high for the first seven months of any year — 14 per cent over the same period in 1953 and also above the previous seven-month high set in 1951 (which included $980 millions in Atomic Energy Commission projects alone). Residential awards of $4,726,131,000 were 21 per cent over the first seven months of 1953; nonresidential, at $4,049,522,000, up nine per cent; and heavy engineering, at $2,312,431,000, up 12 per cent. For the month of July alone, nonresidential awards were down 16 per cent from the July 1953 level; but residential was up 14 per cent and heavy engineering 20 per cent. The July overall total of $1,836,935,000, two per cent over July 1953, was the highest of any July in the 63 years tabulated by Dodge.

Charts by Dodge Statistical Research Service





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F. W. Dodge Corporation Contracts Awarded

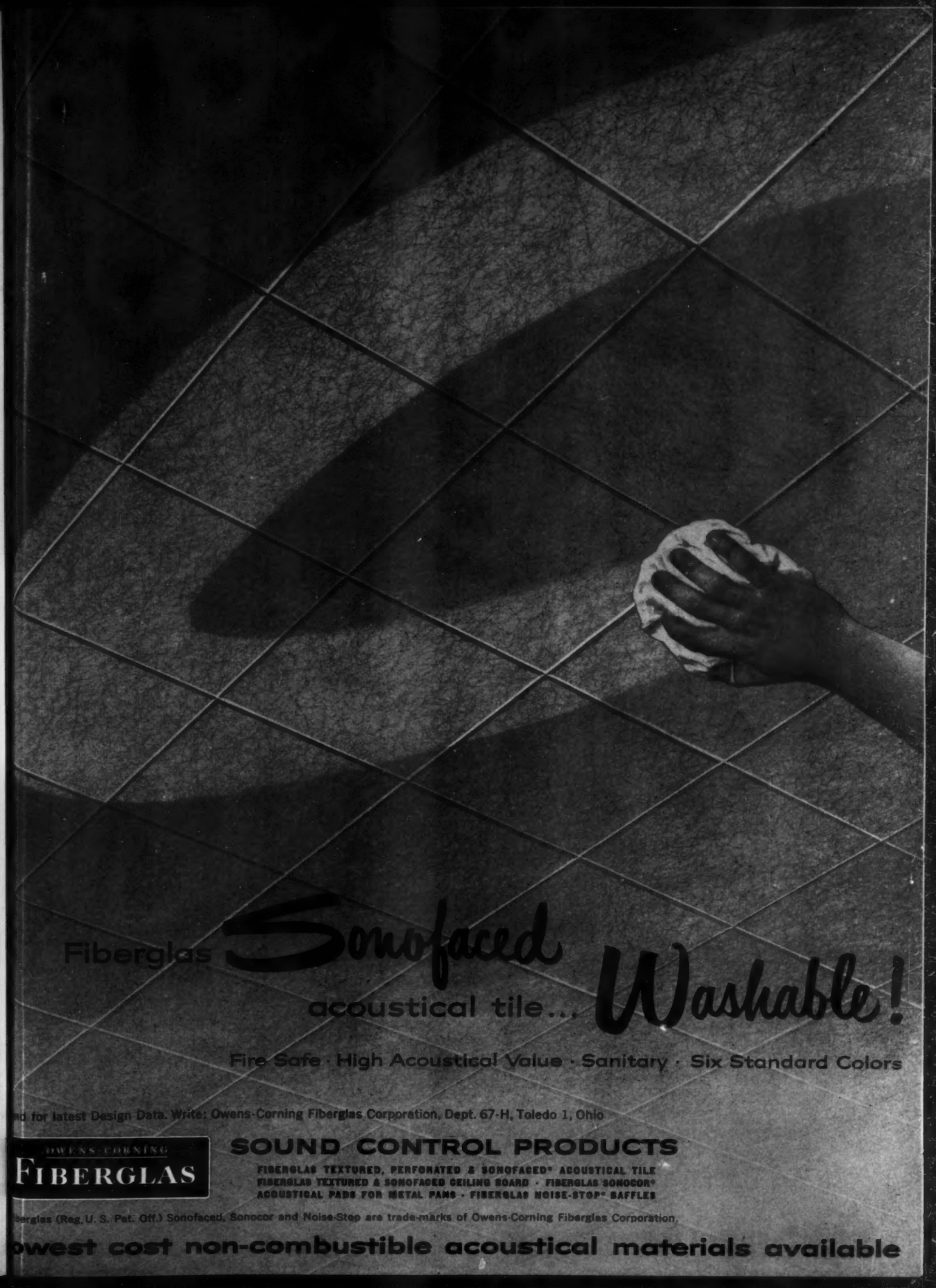
(37 Eastern States)

Number of Units

Year	Annual Total	Monthly Average	Year	Annual Total	Monthly Average
1929	79,459	6,621	1950	535,907	44,657
1935	69,727	5,810	1951	431,318	35,942
1943	235,751	19,645	1952	468,198	39,016
1947	270,244	22,519	1953	453,045	37,752

Monthly Totals

	1953				1954
Jan.	30,398	July	43,520	Jan.	33,701
Feb.	29,326	Aug.	38,045	Feb.	35,254
Mar.	44,228	Sept.	35,449	Mar.	48,475
Apr.	47,518	Oct.	42,215	Apr.	57,323
May	43,944	Nov.	35,406	May	56,652
June	32,943	Dec.	30,053	June	51,405
				July	51,848
				7-months total	334,658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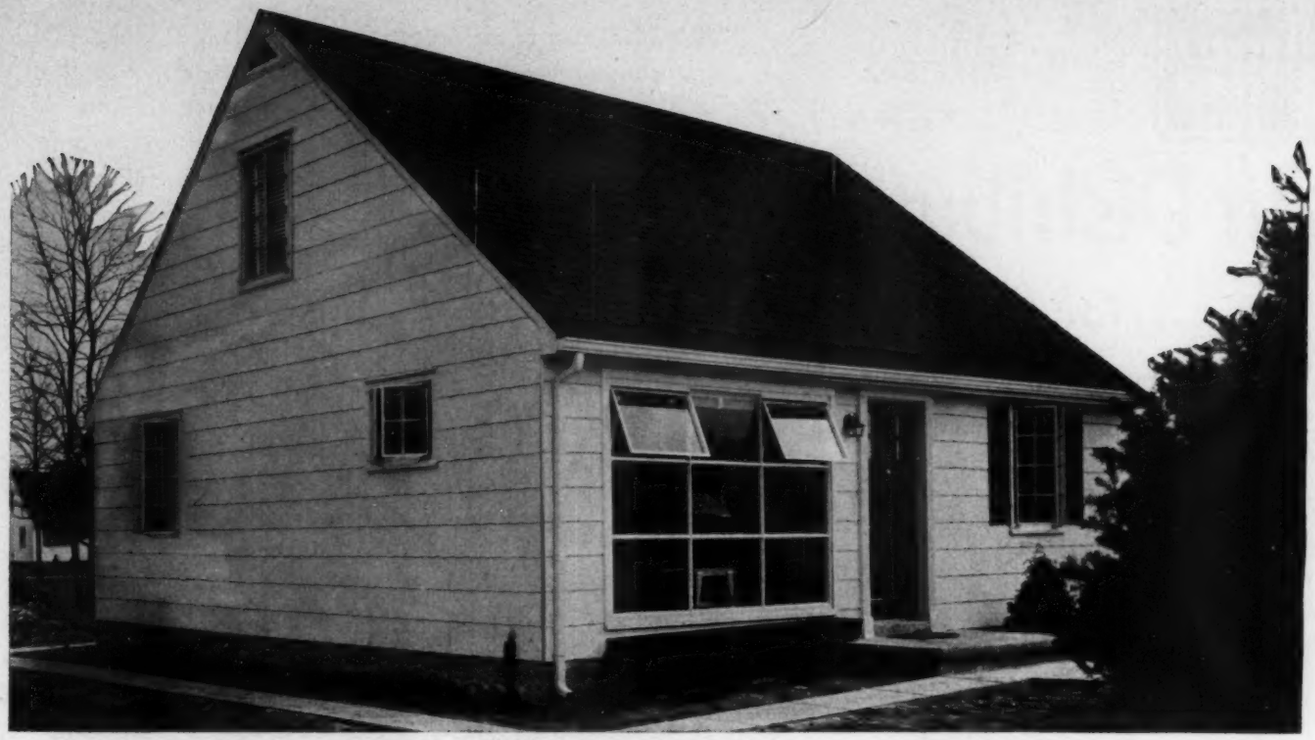


House in 200-unit project, Maryland. Contractor-Builder: Admiral Construction Corp.

Thanks to Steel's Strength . . .

WINDOW-WALL UNITS HELPED MAKE THIS $10,000 HOUSE A FAST SELLER

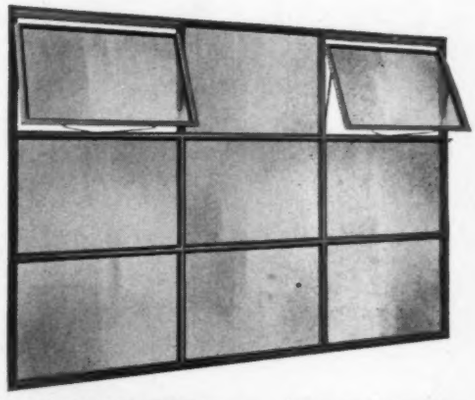
Admiral Construction Corporation of Baltimore made this house a stand-out at the price by installing striking steel window-wall units — and how they paid off! As one of Admiral's top officials put it, "The benefits derived have added substantially to our project's eye and sales appeal."

Window-wall units in your new houses would be a good way to add that extra something that means faster sales. But make sure those windows are made of *steel*. Why? Because only steel has enough strength to permit slender frames and muntins that allow maximum light to enter; that offer best visibility from within. And the superior strength and sturdiness of steel windows is a big advantage in withstanding the stresses often encountered during shipment, at the job site, and following installation in the finished home.

Steel windows do more than add sales appeal. They help you to keep your costs down in *two ways:* (1) steel windows cost less than most other types, and (2) steel windows cost less to install, because they come factory-assembled (with a steel casing, if desired) for quick, easy installation.

A wide selection of steel windows in all standard types and sizes is available locally. Check with your building supply dealer, or the representative of any nationally-known manufacturer of steel windows.

For many years, manufacturers of fine steel windows have used solid, hot-rolled sections of open-hearth carbon steel made by Bethlehem.



SLENDER BUT STRONG . . . The steel framing members of this window-wall unit are slender, yet extremely strong. Note the ventilating lights that let breezes in, keep showers out. Available in many stock types and sizes; Bonderized, prime painted and factory assembled. Many can be glazed with insulating glass. See AIA File 16b.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BUILD *FASTER*...SELL *FASTER* WITH

STEEL WINDOWS

BETHLEHEM STEEL

BARBER COLMAN

"UNI-FLO" ENGINEERED

Air Distribution

...for no smudge on acoustical ceilings!

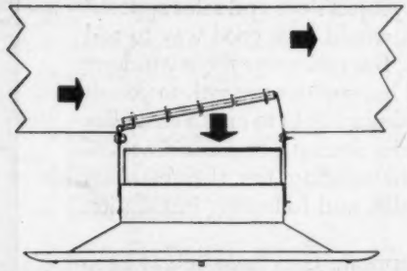
It's a big order to get draft-free, engineered air distribution . . . from inconspicuous diffusers which harmonize with acoustical ceiling designs . . . without signs of smudging or streaking adjoining acoustical blocks! Yet that's the experience record with Uni-Flo Rectangular Ceiling Diffusers after a full year's operation in the First Wisconsin National Bank Building, Milwaukee. It's the same story everywhere. Find out how you can rid your building of the cleaning expense and disturbing appearance of smudged ceilings . . . call your nearby Barber-Colman Field Office or write us.

Architect and Building Manager: Edwin J. Kraus. *Consulting Engineers and Air Conditioning Contractors:* Hoye Heating Co. *Sheet Metal Contractors:* Louis Hoffman Co., all of Milwaukee.

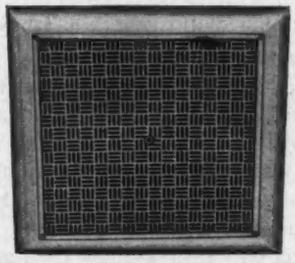
(Above) **First National Bank Building,** Milwaukee, another building in which Uni-Flo equipment eliminated smudged ceiling problem.

(Left) **Uni-Flo Diffusers** are barely distinguishable. In this unretouched photograph, taken after a year's operation, note the clean, streak-free appearance of acoustical blocks adjoining diffusers.

Uni-Flo Rectangular Ceiling Diffusers (recessed model) can be attached to standard T-bar in acoustical ceilings. Surface models are used on any type ceiling.

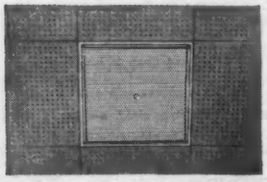


Uni-Flo Deflectrols reduce turning losses and provide balanced air distribution. Installed behind diffusers or in an approach duct at the juncture with the trunk duct.



Uni-Flo Square Ceiling Diffusers are also available. Like the rectangular diffuser, the square type can be furnished in recessed or surface models.

BLAZING THE TRAIL *TO BETTER AIR DISTRIBUTION*



First with diffusers to match acoustical ceilings

Establishment of extensive laboratory facilities and publishing of reliable data on air distribution led Barber-Colman engineers into investigations of many problems facing the industry. Solutions of those problems required numerous product developments. Among them was the introduction of square ceiling diffusers specially designed to harmonize with increasingly popular acoustical ceilings. Not only did this pioneering achievement provide satisfactory air distribution, but the diffusers eliminated troublesome smudging of adjoining acoustical blocks. Dust and dirt deposits are limited to the face of the diffuser, where they are easily removable. Immediate acceptance of the square type led to the development of the rectangular type. Send for literature kit giving complete details on both types.

BARBER-COLMAN COMPANY, Dept. I, 1104 Rock St., ROCKFORD, ILLINOIS, U.S.A.